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"Should I stay or should I go?" How the CHIPS and Science Act (2022) shifted global AI talent mobility.

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Index

1. Introduction

This master thesis aims to give an overview of the current development of global AI talent mobility. The world of artificial intelligence (AI) is growing daily and at a rapid pace, so does its offer in AI tools, their implementations in already established workplace systems, and its specialists who are devoted to developing the tools and features. The general global shift towards making AI accessible to everyone makes the extent of its influence and the inevitable changes to everyday tasks increasingly obvious. Seemed AI not too long ago like a futuristic idea of an easier and strain-saving method to liberate humans from unwelcome daily tasks, is it now becoming an average tool available for all to use.

While some oppose this technical development, others perceive it as source of opportunities and rebirth of the working world as we have been used to it. Early figures about the employment rise in STEM already outline the nowadays trend which has been reinforced by AI, showing that from 1960-2010/12 the percentage of immigration in this sector increased from 6.6% to 28.1% which is almost double the amount in comparison to other sectors such as low, education or social services. (Hanson & Liu, 2016) AI outgrew the perception of being a nice-to-have tool with potential and must be treated as the geopolitical tool it developed into, including all aspects surrounding it. (DeepSeek 2025) "Whomever controls the best AI will hold a competitive advantage in a variety of fields" (Digital Science, 2025), a statement which reflects society's realization and motivates governments, which aim at playing a leading role in the AI realm, to resolve core questions that revolve around the topic of how to attract, develop and retain AI talent. Encompassing further strategies for creating a profound infrastructure in which the continuous development of AI can be guaranteed, the goal should be for society to benefit from the research and its outcomes. (Digital Science, 2025) The most important factor to reach this heightened infrastructure and stability in AI are the current and future AI researchers, who will be the decisive factor for countries' global position in the AI market. Hence, it will be the facilitation of mobility for those talents, directed through geopolitical and social development, deciding which markets will gain the leading hand in the sector.

This thesis will focus on the mobility of top-tier AI talents across the globe, selected by their participation in a world-renowned AI conference. To track and evaluate the tendency of mobility, the CHIPS and Science Act 2022 was chosen as indicator for the AI talents' location choices of employment.

1.1. Definition of AI talent mobility

Before focusing on the impact, the CHIPS and Science Act (2002) had on the further global AI mobility and the presumable employment choice of its talents, it is important to define the term "AI talent mobility" and put its strategic importance into perspective. The term "mobility" is not a recent term, more in the contrary. Mobility has been embedded in human history since our existence and is engrained in our heritage. For nomadic tribes, it is still part of their everyday life in nowadays modern society. Nevertheless, we notice different factors independently in regard to AI. One mayor driver for the decision to leave the home country are economic incentives. Employees have been leaving their home with lower GDPR to increase their opportunities on the job market: "[…] the reasons for moving were mostly employment-related and included better employment opportunities, professional development, career advancement and access to research funding and infrastructure" (OECD, 2008).
While the personal reasons for global mobility are diverse, the emphasis for this thesis will lie on education and employment related motives for moving abroad within the AI sector. To specify the pool of possible subjects even further and being able to more targeted monitor the mobility of talents, the range of possible candidates will be narrowed down by their influence in the AI global market. To achieve this sample of a qualified target group, we will focus only on top-tier AI talents. The idea of targeting the top-tier researchers to be able to gain a valuable overview of and insight in the current trend of AI professionals' mobility was derived from Macro Polo's *Global AI Talent Tracker 2.0.* (MacroPolo, 2023) The Talent Tracker was launched in 2020 as a collaboration with the privately funded Paulson Institute to visualize the global trend of AI talent mobility, using top-tier researchers as starting point and presenting the outcome of a three year's research until 2023. Despite the recent termination of the collaboration between Macro Polo and the Paulson Institute (status: 02.12.2025), Macro Polo will still function as reference for the main concept of this thesis considering its research results until 2023.

1.2. Current trend of global AI talent competition

Prior to pointing out the research gap of the bottom-line AI talent mobility topic and the following methodology explanation, we will specifically investigate the current trend of competition for global AI talent between China, the EU and the USA. Reason for looking into those three blocs separately is the high concentration of research around those specific regions. The question therefore is, how do each of the three blocs tackle the goal of not only attracting AI experts but also training and retaining a workforce in this sector to facilitate organic growth of the internal AI market? Mercer's study "Global Talent Trends 2024-2025", depicting the opinion of over "14,400+ C-suite executives, HR leaders, employees, and investors", provides a valuable initial insight into the global significance of AI and its future development. Participants were questioned about topics such as top business growth risks for 2025, the combination of human labor force and machine learning to maximize productivity, as well as the productivity increase through the implementation of intentional work design (e.g. *Defining which roles are most suitable to agile working*, *Quantifying the ROI of work design and/or tech investments).* (Mercer, 2024) Regarding artificial intelligence, "[o]ver half of executives (54%) believe that their businesses will not survive beyond 2030 without embracing AI at scale" (Mercer 2024, p. 4), while ineffective talent mobility is considered one of the top urgent talent risks to be mitigated nowadays (Mercer 2024, p. 10). Mercer's study gives us a general global overview, which is why a more detailed analysis is needed to have a better understanding of the current AI competition globally but especially between China, the EU and USA. Daniel Hook's research report "DeepSeek and the New Geopolitics of AI" (2025) provides a thorough comparison of the three blocs, analyzing major topics such as the general AI growth, the interrelated competition, collaboration and influence, but also the talent demography. Before outlining the results, it must be stated that Hook's report mostly focused on the development of China, EU-27, USA and the UK. The study focuses on China's development and its recent model DeepSeek, an AI model which was published in January 2025 and has been regarded as serious competition for already established AI models since. Nevertheless, Hook's report shows the evolution of various trends from 2000-2024, facilitating a good understanding of AI progress.

Starting with publications in the AI sector overall, the global trend in Figure 1 shows a significant rise beginning at approximately 10,000 papers in 2000, reaching up to 60,000 papers until 2024. (Digital Science, 2025, p.5) While this graph depicts the general development, Hook also specified the same increase of publications for the three blocs China, EU-27 and US.

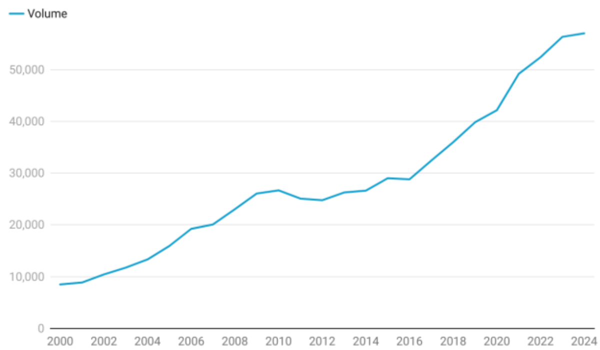

Figure 1: Global growth of AI research papers. (Source: Hook, 2025 - retrieved in December 2025)

Figure 2 makes it clear to what extent each area contributes to the increase, demonstrating a remarkable advance of China in comparison to the EU-27 and the US. Stating Hook, the “Chinese output by volume in 2024 is equal to the sum of the EU-27, UK and US combined”. (Digital Science, 2025, p. 6)

In general, it can be stated that governments increasingly concentrate on the expansion of their technological capacity to gradually improve their advantage in the AI sector. Hook emphasizes on a probable side effect of the growing interest in the AI landscape, which is the decreasing willingness of governments to collaborate with each other. (Digital Science, 2025, p. 6)

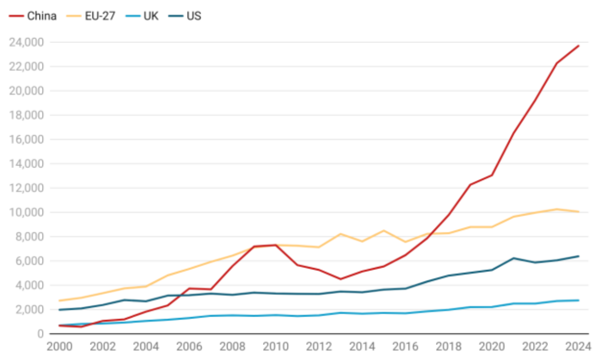

Figure 2: Number of publications on AI by major producing country/region. (Source: Hook, 2025 - retrieved in December 2025)

China appears to be the most collaborative bloc of the main three, which is likely to be explained by the significant higher output of research papers in comparison to the EU-27 and US. As of 2024, China originating papers record an almost 20% participation of co-authors from another country – not limited to the EU-27, US and UK – whereas the EU-27 and US show a 40-44% range and thus the double amount. (Digital Science, 2025, p. 7) On the other hand, China became the main collaborator for the two other blocs regarding the co-authorship of AI publications among all three blocs. Hence,

comparing the figures depicted in Hook’s study “[…] we see that Chinese dependence on collaboration with the EU-27, UK, and US is at a 4% level in 2024, compared with twice this for the EU-27, almost four times this in the US […]”, which underlines the idea that “[…] China is the prime connector for AI research.” (Digital Science, 2025, p. 9)
But not only the publishing of research papers is Chinas strength, also the granting of patents succeeds that of the other blocs as “[m]ost of the world's AI patents granted between 2010 and 2023 originated in China (69.7 %), followed by the US (14.2 %), with Europe accounting for just 2.77 %.” (Niestadt, 2025)

The above argumentation and illustration regarding the development of research paper publications in the respective blocs gives reason to conclude, that “[t]he established orthodoxy that the US is ten years ahead in AI” (Digital Science, 2025, p. 4) starts to shift towards a dominance from China’s side. One of the undoubtedly many interlinking causes for this shift towards the AI-focus and increasing competition is likely to be China’s, in 2017 established, *New Generation Artificial Intelligence Development Plan*. (DigiChina, 2018) Meanwhile, the trend in the EU-27 shows similarities with growing focus on improving and retaining AI talent. The European Commission states that the workforce being employed in the field of AI or at least contributing with their AI skills has doubled in the time from 2016-2023. To provide a numerical indication of this progress, it concerns 0.41% of employees within Europe (EU-27). One major difficulty for Europe is to facilitate a more balanced distribution of AI talent, as the current AI hubs center in a few countries with Germany and France as two of the leading ones. (European Commission, 2025b) Therefore, the EU-Commission published the *AI Continent Action Plan* in April 2025, emphasizing the necessity to strengthen the whole bloc in AI matters.
To reach this goal, five domains were announced of which an “[…] EU’s strong AI talent base […]” is stated as the fourth and all of them together (including *computing infrastructure*, *high-quality data*, *AI algorithms* and *AI Act compliance*) have the explicit purpose to function as “the necessary pillars for Europe to become the AI Continent.” (European Commission, 2025a) For this whole project the Commission plans to provide EUR 200 billion, to be able to change EUs position.

Stepping away from the regions’ comparison via research papers, an official US Government website *Federal Reserve* delivers an overview of the AI competition with

Haag’s article “The State of AI Competition in Advanced Economies” (2025). Its findings were based on the metrics “preparedness and performance in AI” (Haag, 2025), focusing mainly on China, USA, EU and *other advanced foreign economies*, in short AFEs. Haag among other things compared the physical infrastructure - which relates for example to data centers and computing hardware - and the digital infrastructure, meaning the cloud computing or tools for model deployment. Here the USA managed to develop a clear advantage due to the apparent earlier start of investment in data center construction, leading to a number of approximately 4049 centers in 2024. Meanwhile, the EU-27 achieved to create around 2250 data centers and China 379. (Haag, 2025) Keeping the above research paper comparison in mind with China dominating the publication figures, the USA appear to have an advantage when it comes to the physical infrastructure of AI. Considering the blocs’ sizes, the EU-27 seems to maintain a competitive advancement in the expansion of AI infrastructure, outperforming China by counting almost 6 times the number of centers. Another researched factor in Haag’s article is *Private Investment and R&D*, covering the period from 2013-2024. Also in this ranking, the USA succeed other regions in investment and AI R&D. Hence, the cumulative sum the US invested amounts to $470 billion, whereas China sums around $120 and the EU-27 totals approximately $50 billion dollars. (Haag, 2025) As comparison, Canada, India and Japan reached a number of under $25 billion.

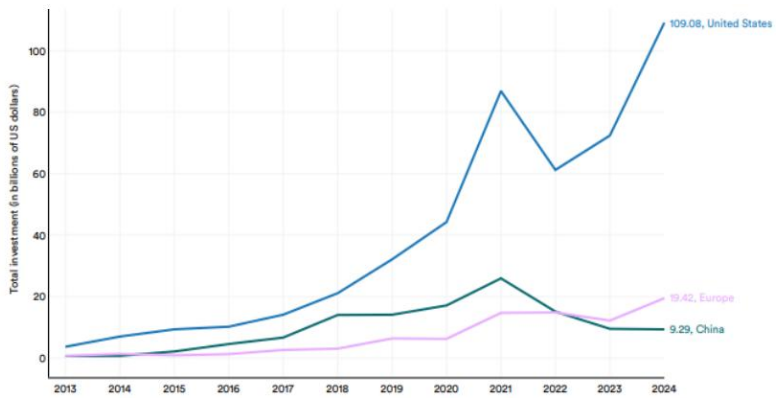

Figure 3: Global private investment in AI by geographical area, 2013-2024 (Source: Niestadt, 2025 - retrieved in November 2025)

To have a better understanding, Figure 3 shows the private investment increase of the three blocs China, EU, US and gives the status of the sum reached in 2024.

Therefore, the US achieved $109, the EU $19 and China $9 billion dollars of AI investment. (Niestadt, 2025, p. 3)

In general, it can be stated that from 5 observed topics, the US was concluded to be leading 4, while China dominates in *Energy Infrastructure Risks* by generating around 3,200 GW in comparison to 1,293 GW in the US, followed by the EU with 1,125 GW.

Despite the good numbers throughout various AI related initiatives the EU seems to be falling behind other regions when it comes to leadership in an AI relevant field. Regarding Zulhusni in his article published on the website Tech Wire Asia (2025) the EU lacks AI competence to "turn research into patents or startups". (Zulhusni, 2025) The reason for the EU's disadvantage is paradoxically its only strength, namely technology *regulation.* This regulation creates challenges for increasing AI investment, which in turn hinders efforts to advance AI development:

- "Regarding innovation and adoption, the EU is lagging behind China and US due to lack of investment, speed and scale." (Batista, 2025)
- "The United States has produced 40 AI foundation models. China has developed 15. All of Europe combined has created just three." (Stanford Institute for Human-Centered Artificial Intelligence [Stanford Institute], 2025)

To summarize the outcomes of the above-mentioned topics considering AI competitiveness, here is the cumulated overview of the strengths for the three main regions for now:

- US: leads in *data centers, private investment and R&D*
- China: leads in *publishing research papers, energy infrastructure risks, granting AI patents*
- EU: leads in *regulation*

Moving from the technical aspects of competition towards the scientific field behind the AI talent competition trend, we find Neufeld's (2024) study to provide valuable insights into current trends. Neufeld primarily specialized on the analysis of "The Immigration Advantage in the U.S.-China Strategic Contest for STEM Talent" (2024).
He outlines the strong competition between those two nations, fought through winning the upper hand of international STEM talent recruitment which is a crucial factor of further technological and economic development. While he notes the United States' continuous strength of attracting top-tier researchers and scientists across the globe, he also points out that the US is wasting potential due to the strict and long immigration rules and periods. (Neufeld, 2024) This furthermore leads to a downward spiral of the US becoming increasingly unattractive for the global talent, feeding into the rapid pace of China's advancing in facilitating a smoother immigration plan. Neufeld even mentions the difference in publication numbers, leading to China overtaking the US,

which thus underlines the findings above regarding the numbers in publication in Figure 2.

Neufeld's main argument for the closing gap between the US and China when it comes to their attractiveness for top-tier researchers is, that "the U.S. immigration system is now no longer adequate for competing for highly skilled workers in STEM fields." (Neufeld, 2024, p. 147) Caused by a huge green card application backlog and the declining intention of specialists from other nations to go to the US (he specifically names India and China) becomes stronger. Neufeld gives the example of a Turkish graduate from an American university who – despite his contribution to a "major innovative breakthrough in AI" (Neufeld, 2024, p. 145) – had to leave the country due to the inability to obtain a visa. These insights highlight the importance for countries to not only focusing on the attracting of highly skilled professionals, but also on retaining them as quickly as possible. Just a few years before, Aiken et al. (2020) conducted a study which analyzed the mobility trends of American top-tier AI professionals with PhDs and their preferred employment country after their education. His results showed that most American AI talents chose to remain in the US for employment after their studies. Also, the majority of immigrants favored staying in the US and applying for citizenship. (Aiken et al., 2020)

We see that within a few years the findings of various studies and literature differ in the tendency of global talent AI mobility emphasizing even more on the necessity of analyzing the current global AI talent mobility even more.

1.3. Research gap

Prior to discussing the methodology, we will present an overview of existing and missing research regarding AI talent mobility influenced by political events, to outline the research gap this thesis attempts to address. Therefore, following three questions will be in focus:

1. What is the research status of AI talent mobility connected to political events?
2. What are the research gaps for this topic?
3. How does this thesis bridge the gap?

What is the research status of AI talent mobility connected to political events?

In this context, MacroPolo's AI tracker should be mentioned primarily. While the specifics will be targeted in the methodology section, considering the research gap, the talent tracker does mention the importance and influence politics have on the movement of AI talents: “Now, after three years of a pandemic and amid geopolitical ructions, how has that balance of talent changed?” (MacroPolo, 7.2.2025) In this statement, MacroPolo refers to general geopolitical ructions, not clearly distinguishing or mentioning specific political changes or events that might have impacted the AI talent movement. The website clearly refers to the impact of the pandemic which lasted the major time span during which the inquiry was conducted, roughly 2020-2022. MacroPolo therefore cannot be more in depth consulted for the research status combining AI talent mobility and political events, as it focuses on the education vs. employment countries of the AI talents before the CHIPS and Science Act was established in 2022.

Another source to mention is the *Boston Consulting Group* talent tracker, giving an overview of results until Q4 2025. Again, the importance of political ructions and difficulties is mentioned to be a driving factor of the recent talent mobility, leading to decreased mobility by 8.5% compared to the year before. Less hiring in key companies, the geopolitical difficulties, as well as harsher migration regulation are named as main causes for the declining talent movement, but again no further specifics are mentioned. (BCG, 2025)

Bareis and Katzenbach (2022) tackle the impact which political events have on development and technological improvement to create refined AI strategies, analyzing the effects of government changes, e.g. the US elections in 2016 that started a different approach towards AI with Trump, shifting with Biden’s election 2020. China’s AI scheme on the other hand is depicted as a remedy for growing social hazards – such as aging population – to strengthen leadership and mechanisms in organizations. For the EU, Germany and France are in particular mentioned to be the main forces regarding AI advancement though more representative statements about AI development in the EU are lacking. Despite fulfilling the second important topic for the research gap question which is the political happenings, the first driving motivation of global AI talent mobility is missing. (Bareis & Katzenbach, 2025)

Wachs (2023) taps into the migration analyzation of highly skilled developers due to major political disruptions, leading to a “brain drain” of the talent origin country caused by the Russian invasion of Ukraine. He uses this war as turning point to research the long-lasting effects it has on all countries involved. Hence, the first thought of mostly specialists from the attacked country being in need to emigrate, his study shows that also the experts from the causing nation are changing their behavior. After 2022, the number of Russian-based specialists leaving their country increased more than the numbers of geographically surrounding countries or Ukraine, underlining the idea that political disruptions influence talent mobility in more versatile ways than originally thought. (Wachs, 2023)

What are the research gaps for this topic?

> At the same time there is a need to ensure that future developments in AI, and in the supporting infrastructure of data centers, undersea cables, chips and data, do not lead to a zero-sum arms race. In the current global environment generative AI and advanced chip manufacture are too often seen only through a national security lens, an essential perspective but only part of the global picture.
>
> - (UNDP, 2024, p. 75)

As the above citation asserts, research gaps overall but also considering the specific topic of this thesis might be explained due to the narrow view that certain nations, regions or blocs have towards the benefit of AI talent mobility. While AI as a whole topic shifted to the focus of most geopolitical power instances, the actual effect that political changes have on the willingness of top-tier AI talent to move or stay abroad plus what this means for those economies is yet to be scrutinized.

After some investigation it became increasingly clear that studies seem to be focusing on either AI talent mobility due to educational and monetary advantages, or governmental aspirations to improve the country's AI competitiveness. Many times, those two topics were dealt with separately or at least not put into direct connection by observing the behavior of top-tier AI talent after governmental resolutions or legislative decisions. Even if considered as interrelated topics, political complications are being generalized as determining reason for AI researchers to move. (Zhu & Ma, 2025)

One example for this observation is the study from Zwetsloot et al. (2021a). In this study, researchers who published at least two papers through NeurIPS were chosen to be survey candidates to answer *immigration-related questions*. The whole study gives an informative presentation of the researchers' opinions about policy-related decision making regarding their preferences for moving abroad. The participants were specifically asked about the factors they see crucial to be fulfilled before even considering leaving their home country, providing possible answers such as several countries to choose from (including an open text box), as well as positive and hindering factors for conducting AI research in a foreign country. (Zwetsloot et al., 2021a) Nevertheless, political events are only general part of the interrogation and so to speak the passive part of the equation, as they were only included in the researchers' preferences of potential happenings and no direct connections to specific political changes were made. Also, Hook's Digital Science report refers to political factors shaping the talent mobility trends, not mentioning or targeting the comparison with a certain political event. (Hook, 2025)

Other examples are studies in which the utilization of NeurIPS conference papers from top-tier AI researchers has scarcely been considered as a ground stone for subsequent AI talent mobility analysis. Hence, NeurIPS findings are used for references when it comes to university, industry and government rankings or the co-authorship of the papers, while talent mobility is not discussed. (Recorded Future Insikt Group, 2025) Looking into CHIPS and Science Act or just chips related resources, most articles we can find are about the Act itself, depicting its influence especially on firms in the semiconductor industry and manufacturing processes, or about the general effect it has on the labor market in combination with funding strategies. (Erten et al., 2025; National Science Foundation, 2022; Haag A., 2025; Deloitte 2025)

One insightful theoretical framework is provided by Kerr (2019) with his work "The Gift of Global Talent". He questions the phenomenon of why especially the more skilled professionals choose to leave their education or home country and relocate internationally. Kerr specifically targeted professionals from STEM to see how their migration defined the destination countries' demography as he declares immigrants to represent an extensive part of STEM professionals. In addition, he discovered that the higher the talents educational background, the higher also the probability rises of them leaving their country: "[…] those with college degrees are roughly three times more likely to migrate than those with only a secondary level of education" (Kerr, 2019, p. 4). Considering his focus on OECD countries, Kerr identified Australia, Canada, the UK and USA as main attraction hubs, emphasizing on the growing importance of China and India becoming crucial producers of talent. However, within his research Kerr does not specifically refer to professionals in the AI sector.

Bilan et al. (2025) analyzed the movement of highly skilled digital (ranging from cloud computing, data analytics to artificial intelligence) specialists with the focus of "brain drain” after their emigration. Hence, digitalization or digital development is considered a main attracting factor for researchers to relocate, leading to the transfer of knowledge and the facilitation of technological innovation in the destination country. (Bilan et al., 2025) They derived a causal relationship between skilled immigrants and innovation, showing the substantial importance for the respective employment country of attracting top-tier talent, as it’s exactly those specialists who drive further economic development and digitalization. Especially the use of AI turned out to be a turning point during the study, as its utilization increases the growth speed dramatically. (Bilan et al., 2025) The analysis from Bilan et al. (2025) provides crucial insights for the further argumentation of the importance regarding AI researchers mobility across the globe. Yet, they focus on the economic development aspect of the respective talent attraction country and not sufficiently on the actual change in mobility trends.

How does this thesis bridge the gap?

As stated above, common papers and studies tend to focus their AI research on either the political and governmental factors plus their aftermaths, or on the AI talents themselves by examining why the latter prefer certain environment for their research and what leads them to move abroad. After in-depth investigation it became increasingly certain that a whole picture of choosing a particular political event as a benchmark for further analyzing the movement of AI talents, in addition to focusing on the NeurIPS papers for receiving a selection of top-tier talents and examining the researchers’ education and employment heritage, has not been done yet. Therefore, this thesis is the first approach to answer the question whether the CHIPS and Science Act (2022) has impacted global AI talent mobility patterns for top-tier researchers, keeping into consideration their country of education vs. current country of employment. Inferring from this, three research questions were determined to accordingly outline the thesis:

Research Question 1	Were AI talent mobility trends, regarding education vs. employment country, influenced by the CHIPS and Science Act (2022)?
Research Question 2	How do the mobility patterns observed in the NeurIPS sample continue after MacroPolo’s Global AI Talent Tracker (2022)?

Research Question 3	Which mobility trends for top-tier AI talent can be expected in the future, and how should nations adjust their tactics to remain competitive?

RQ1 will emphasize on the main question, which is the direct impact the CHIPS and Science Act has on the AI talent mobility trends, giving insights into the education vs. employment location. RQ2 serves to continue MacroPolo's findings to investigate how the mobility trend shifted since 2023, while RQ3 will be the baseline for chapter 5 to be able to presume the most likely future development based on the findings in the chapters before.

2. Methodology

The methodology for this thesis was decided to be based on two cornerstones that promised to represent reliable sources. The first of them is MacroPolo's Global AI Tracker, an AI talent tracker which was launched in 2020 and rapidly showcased its importance for the research and understanding of global top-tier AI talent movement. The second source is the Neural Information Processing Systems Conference, or short NeurIPS, which was already used by MacroPolo's researchers to create a comprehensible overview of the mobility development from 2020-2023. (MacroPolo, 2023; VizHub, 2024)

2.1. MacroPolo

As mentioned above, MacroPolo is a talent tracker for artificial intelligence experts. More specifically, it is a website which cooperated with the Paulson Institute, "[…] a non-partisan, independent 'think and do tank' dedicated to fostering global relationships that advance economic prosperity, promote sustainable growth, and maintain global order in a rapidly evolving world" (Paulson Institute, n.d.), to create a platform which shows the modern developments of mobility trends around the world.
At this point though, it must unfortunately be mentioned, that despite the original aspiration to continuously update the website as a database every couple of years, the cooperation between them has been terminated after eight years of collaboration, "[…] as the Paulson Institute will focus its independent research on supporting its programs as it continues to diversify its scope." (MacroPolo, 2023) This declaration can be seen when trying to access MacroPolo's website via Google search. As this change was happening while progressing with this thesis and due to the fact that the original website with all information can still be accessed and will be included in the sources, it was decided to proceed with using MacroPolo as a foundation and archetype to the evaluation of the findings in chapter 4 *NeurIPS AI Talent Mobility Results*.

MacroPolo conducted a comparative study to answer three main questions:

1. *Where do top-tier AI researchers come from?*
2. *Where do top-tier AI researchers work today?*
3. *What are their career paths?*

To narrow down the target pool to conduct this study, MacroPolo did not decide to choose candidates which are generally involved with AI through either work or university, but to conduct this study with only the top category of researchers. To reach this goal of only including top-tier AI talents, MacroPolo relied on the NeurIPS Conference papers due to their high-quality status which we will come to later. When describing the methodology, MacroPolo declares its awareness about the debate over the advantage of focusing on two different types of talent. Here we are talking about two possible approaches regarding the enhancement of national or governmental AI strategies, and the preference per region. The first of them would be to prioritize quantity over quality. The opinion of this approach is to focus on the cultivation of a high number of AI engineers, which are not in the top-tier but average range of knowledge and skills to create a *large workforce*. The second option and contrary proposal would be to focus on the quality and not quantity. Therefore, the country should prioritize the development and attraction of top-tier AI talents. (MacroPolo, 2023) MacroPolo decided to address the elite researchers because of the belief that the top-tier level is more likely to deliver a higher standard in their research, which furthermore might lead to a higher progress regarding innovations and hence to a better adaptability to and solving of *real-world problems*. (MacroPolo, 2023)

To answer the above-mentioned questions, MacroPolo selected 186 random papers from NeurIPS, resulting in receiving 867 authors which were evaluated for their educational level and their current country of employment. MacroPolo divided the samples into paper samples and oral presentation samples and searched for the authors via web-search.

2.2. NeurIPS

The NeurIPS, or in full name Neural Information Processing Systems Conference, is one of the most established conferences that supports the publication of young scholars' research papers. Founded in 1987, the NeurIPS is held yearly in a different location and considered as one of the – if not the – most important conferences for artificial intelligence publications, which is why MacroPolo heavily relied on the NeurIPS papers for the analysis of their findings. (MacroPolo, 2023) The reason for its established name is the targeting of top-tier researchers. To participate in the conference, young experts submit their scientific papers to apply for the opportunity of presenting their work at the conference itself in form of a poster presentation. The acceptance rate for this conference is known to be very strict and despite the huge increase in submissions it has not reflected the number of papers in its percentage of accepted papers:

> For its December 2022 conference, NeurIPS accepted a record-breaking 2,671 papers with an acceptance rate of 25.6%, compared with 1,428 papers and an acceptance rate of 21.6% in 2019. While the conference has expanded in numbers, it is still considered one of the most selective AI conferences on record, meaning that it is a good proxy for the top-tier (top ~20%) of AI research talent.
>
> – MacroPolo, 2023

To give an example, Figure 4 shows an acceptance rate comparison from 2019 and 2022, indicating the previous statement of only slight increase of the paper acceptance rate despite an approximate 40% increase of submitted papers, showing the tough competition the authors must face. (MacroPolo, 2023)

Key Stats on NeurIPS 2019	Key Stats on NeurIPS 2022
6,614 Papers submitted	10,411 Papers submitted
1,428 Papers accepted	2,761 Papers accepted
21.6% Paper acceptance rate	25.7% Paper acceptance rate

Figure 4: Comparison of submitted and accepted papers for the NeurIPS in 2019 vs. 2022 (Source: MacroPolo, 2023 - retrieved in September 2025)

2.3. Thesis Approach

The methodology for this thesis is closely leaning on MacroPolo’s innovative approach of sampling state-of-the-art AI research papers to furthermore receive an author-talent-pool. To reach this sample a random selection of 100 NeurIPS papers was done to receive an unbiased selection. When visiting the NeurIPS website and navigating to the papers for the respective year of interest, all accepted papers for the time-range of this year can be found and accessed through linked dots, which also facilitates the transparency of the individual authors. All papers are compiled into 17 clusters that represent different topics for AI research. Those who could not be assigned to a cluster are part of a general pool which serves as the 18th cluster for this thesis. Altogether, this results in a dynamic map to choose from. (VizHub, 2024)

The reason for this explanation is that those clusters were used to distribute the drawing of the samples more equitably. Hence, per cluster – in total 18 – 5 research papers were randomly selected by clicking on the “dot” (= research paper). For each paper, always the first author mentioned was chosen to determine the education and employment country and to keep neutrality. In case the first author could not be located, the second was chosen, then the third, and so forth. If it happened that none of the authors were found, another paper was randomly selected to continue the process. This procedure was repeated until a total of 100 authors were met. For each person, the link to the research paper, the name – which will be anonymized –, the country of last education and the country of current employment were tracked. The authors were found through web-search, including LinkedIn, GitHub or the researchers’ private website. At this point it should be noted that a certain bias cannot fully be avoided due to the traceability of the authors. As not all countries and regions have equal access to social media and web-search resources, it must be kept in mind that the traceability of the authors is limited to the extent of online presence. Several authors and research papers had to be changed during the data collection due to those difficulties. Nevertheless, the sample preparation was conducted under highest standards of neutrality and depicts a representation of the current global AI talent mobility trend.

The subsequent step for the data after identifying an author was to track the countries of their latest education and of their current employment. In this case, an additional two challenges were faced: the level of education and the equivalence of employment per author. To receive the data points for the education country, the authors’ CVs or websites were investigated to track the location of their last finished studies. In this case, the last equals the highest degree. At this point it is important to state that the data was collected in July/August 2025. Finished degrees after were not considered retrospectively.

Relying above all on the proficiency and quality of NeurIPS papers, the degree level among the authors was not differentiated. It is to say that disregarding the highest degree an author completed, the person was nevertheless selected as representative for this thesis, as the research paper acceptance of the conference outweighs the question which level of degree is sufficient to be considered a top-tier researcher. Furthermore, the limited traceability of the researchers as mentioned previously in combination with the definite number of papers per cluster results in varying education levels per person, reaching from bachelor's to PhD.

In case the researchers' websites, CVs or LinkedIn did not track any employment firm, but the education is currently being carried out in a PhD level, the country of the PhD's university was considered as current employment. This approach was used exclusively for the PhD level, which makes a total of 9% of the researchers, to keep unbiased data sampling. Any author who only disclosed a master's degree or status of master student, without any indication of further employment was not chosen for the sampling. A similar procedure was targeted for the country of employment. As just stated, this could be the country of the university the PhD was currently carried out in, disregarding the possibility of online studies as this information cannot be determined without research exceeding the dimensions of this thesis. The information regarding the country of employment was treated correspondingly, choosing the country of the firm mentioned as the second data point for further investigation into AI talent mobility. Any form of online employment unfortunately cannot be targeted or detected through the web-search.

To summarize the methodology approach of this thesis:

- **Source**: NeurIPS papers divided into 17 clusters with specific topics and 1 general cluster, totaling 18 clusters (see *Annex 3_NeurIPS Data 2025*)
- **Sampling**:
  - 100 random research papers / 1 author each
  - 5 papers per 17 topic related cluster = 85 authors
  - 15 papers from the general pool = 15 authors
- **Data points**: Author's education country vs. current employment country
  - If unemployment but enrolled in a PhD: PhD country = employment country, country of master's degree = education country
  - If PhD + employment: PhD country = education country
- **Sources**: LinkedIn, GitHub, private websites, online CVs
- **Approach**: Collected dataset depicted as continuation of MacroPolo's aggregated data to illustrate the effects of the CHIPS and Science Act 2022
- **Limit**: Constrained traceability of authors leading to a cultural and educational bias

3. CHIPS and Science Act 2022

The CHIPS and Science Act 2022, or by its full name *Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act*, was signed into law by President Joe Biden in August 2022, authorizing §280 billion to increase the United States' competitiveness regarding semiconductor manufacturing to drive national invention and supply chains. (Cooper, 2022) The decisive factor for this Act was the chip shortage caused by the Covid pandemic 2020-2022, leading to a heightened apprehension over possible geopolitical disruptions considering the supply chain which was mainly coming from Asia. Hence, the US dependence wanted to be reduced by intending to locate the necessary means for advanced chips production, such as technology and workforce capital, on US grounds. (Hufbauer & Hogan, 2025)
The further reason for the decree was the desire to increase the competitiveness of the USA in order to become a global pioneer in chip production, raising the domestic annual expenses on electrical manufacturing from $3.3 billion to an average of $71.8 billion. (Schmidt et al., 2023) While China established itself in manufacturing semiconductors over time, the US increasingly lost importance in global competition. Hence from 1990-2020, the percentage of the US production fell from 37% to 12%, whereas China's production increased from barely noticeable to 15%, thus overtaking the US. (Cooper, 2022) In addition, the pandemic inflicted delivery difficulties created supply chain hindrance, leading to further semiconductor shortages and low availability in the US. (Badlam et al., 2022) This, plus the combination of lagging technical structures and the desire to strengthen STEM-related economic sectors ultimately led to the decision to ensure that national STEM research and labor force grows and is thus globally competitive.

The reason for choosing this Act as reference point for the AI talent mobility question of this thesis is its thematic proximity because of the semiconductor related investments which have a crucial impact on AI talent mobility in general. The CHIPS Act will hence be used as the political turning point to track the development of the global AI talent mobility under consideration and as continuation of MacroPolo's AI tracker. To gain crucial insights and better understanding as to why this Act functions as benchmark for AI talent mobility, this chapter will address its objectives that need to be thought about before looking at the bigger talent mobility picture.

The CHIPS and Science Act 2022 is divided into three Divisions: Division A, B, C. Division A defines the details about the main goal of the Act in general, referring to the advancement of semiconductor research and production. Division B focuses on the research and innovation in various sectors, such as for the energy sector, cyber security, promotion of bioeconomy and so forth. Division C on the other hand addresses “threats to the supreme court of the United States” and is therefore not further required for this thesis. (U.S. Senate Committee on Commerce, Science, and Transportation [U.S. SCCST], 2022) Furthermore, the CHIPS and Science Act 2022 will, due to simplification reasons, from now on be referred to as CHIPS Act or simply Act. In case any other acts are cited or mentioned, the distinction will be made explicit.

3.1. Strategic objectives

The objectives section will focus on aspects of the CHIPS Act such as its further approach or goal when it comes to the semiconductor manufacturing, R&D funding plans and how AI talent should be attracted or retained.

At the very beginning of the Act under Division A, section 102, the *Creating helpful incentives to produce semiconductors (CHIPS) for America fund* is explained through a meticulous breakdown of all cost subsidies to increase the production of semiconductors and facilitate the establishment of incentives for further production promotion. (U.S. SCCST, 2022) Thus for example $50 billion are provided for a time span of 5 years to develop the R&D sector, increase domestic manufacturing and promote programs which create development strategies for workforce optimization. In this respect, workforce is not limited to AI researchers, but semiconductor manufacturers and the fund comprises the support of administration or oversight costs, as well as general expenses and salaries. The incentive program of the fund is to improve the production of chips specifically to “advance economic and national security interests”. (U.S. SCCST, 2022) The chips just mentioned are referring to military, auto industry and other industries crucial for or relating to those sectors, whereas $11 billion dollars are determined for respective research and development programs especially together with the *National Semiconductor Technology Center (NSTC)*.
A huge amount of the fund sum is foreseen specifically for the technology security and national workforce. The goal of the prior is to ensure semiconductor production under

secure circumstances, involving cooperations with other governments as partners to better enable international security when it comes to supply chains, ICT and the implementation of trustworthy telecommunication technologies. The latter is expected to incentivize the establishing and growth of a "highly skilled domestic workforce" (U.S. SCCST, 2022 p. 3) to facilitate the increase of the workforce by additional 90,000 individuals employed in the semiconductor industry. To achieve that, inclusive incentives are considered to improve the opportunity for economically disadvantaged groups, mentioning *minority- / veteran- and women-owned businesses* as targets for funded projects.

Division B focuses on the research and innovation part of the CHIPS Act, such as energy programs, (advanced scientific) computational, chemical, but also biological and environmental research programs, trying to contribute to the goal of "enabling development of mission-relevant technologies". Within this section, Artificial Intelligence is mentioned under section 10232, stating that the National Institute of Standards and Technology will be supported in developing data science and AI which is *trustworthy and safe*. (U.S. SCCST, 2022, p. 5)
Furthermore, the AI specific research capacity ought to be made more transparent, to disclose the possibilities of how extensive research for artificial intelligence can be conducted. (U.S. SCCST, 2022, p. 20)
Following on from section 10232, under 10313, the promotion of STEM education is described, outlining the importance of supporting students or postdoctoral researchers in their career development. This section is related to the focus point of this thesis, which is a multitude of questions around AI talent, but more specifically here, the establishment of an AI talent pool. The goal stated in this paragraph is to build an applicants' pool as distinct as possible which is grounded in a thorough and proper investigation and investment in the education systems, with the aim to "recruit and train the next generation of artificial intelligence professionals". (U.S. SCCST, 2022, p. 15)

4. NeurIPS AI Talent Mobility Results

While the previous chapters served as introduction into the topics of AI talent mobility with its trends and developments, the method for data the gathering and processing, and the fundamentals behind the CHIPS Act, chapter 4 is the empirical core of this thesis examining a total of 100 top-tier AI talents, gathered through NeurIPS papers.

As described in the methodology in chapter 2, two main data points were gathered for every researcher in the sample: the country in which they completed their highest education in and the country of current employment (telework from abroad cannot be tracked and therefore considered). Looking at those two indicators allows us to create a comparison of the mobility flows after determining where the AI talent received their education in vs. in which country or region they contribute to afterwards with their knowledge, whereas the respective employment country benefits from their impact on the AI industry through innovation and development.

This chapter starts with a broad sample overview, describing the main identified regions the AI talents studied in and showing the educational background of the AI talents by creating statistics of the universities they visited. Furthermore, the sample will be analyzed to show the mobility trends since MacroPolo's AI talent tracker with consideration of the CHIPS and Science Act 2022, functioning at the same time as a comparison to and a continuation of MacroPolo's data. Through this comparison, the mobility patterns in combination with the influence of the CHIPS Act, and the thus resulting impact on further economic and geopolitical changes will be discussed. This includes as well questioning the commonly held views described before, and whether the regional AI dominance changed from 2023-2025.

As a conclusion, the results shown in this chapter will provide the basis for the results and outlook in chapter 5, discussing the AI talent mobility patterns in chapter 4 and their potential future economic and geopolitical development.

4.1. Dataset overview

The data sample consists of 100 individuals, randomly drawn from the 17 clusters plus the "general pool", each representing one research paper, a country of education and a country of employment. The cluster names are the following (VizHub, 2024):

1. LLM
2. Speech
3. Multimodal LLM
4. Segmentation

5. 3D / object detection
6. 3D pose estimation
7. 3D reconstruction
8. Diffusion
9. Reinforcement
10. Alternative Architectures
11. Adversarial Robustness
12. Graph
13. Federated Learning
14. Bandits
15. Causal
16. Biology/Chemistry
17. Time Series

The sample of the AI talents showed a broad and diverse talent pool varying in age, specialization of AI related topics in various fields and their educational background. As already stated, the talents were not distinguished in relation to specific topics but all automatically considered top-tier researchers and therefore suitable candidates for data sampling.

4.1.1. University ranking

It is important to depict the pool of educational institutions to develop an understanding of the AI talents' backgrounds. As stated before, due to availability and traceability reasons all found talents were considered as a data point, disregarding if they achieved bachelor's, master's or PhD. The exceptions are those who have not specified any other employment apart from the university where they are completing their PhD in. In those cases, the country of the respective university was considered the country of employment. This was only taken into account for PhDs, not for bachelors or masters. Due to this fact it can be concluded at this point that 9% of the individuals remained in academia while the majority is employed in industry as of September 2025.

First, the overall pool of the institutions was collected and duplications were discarded, which led to a final count of 65 different institutions the AI talents studied at. As some universities were not taken into consideration because they did not feature in the official rankings, the final number of institutions is 63. To receive the ranking in Figure 5, the official website of Times Higher Education, World University Rankings 2025 was used. (Times Higher Education, 2025) After checking each university, following table could be established:

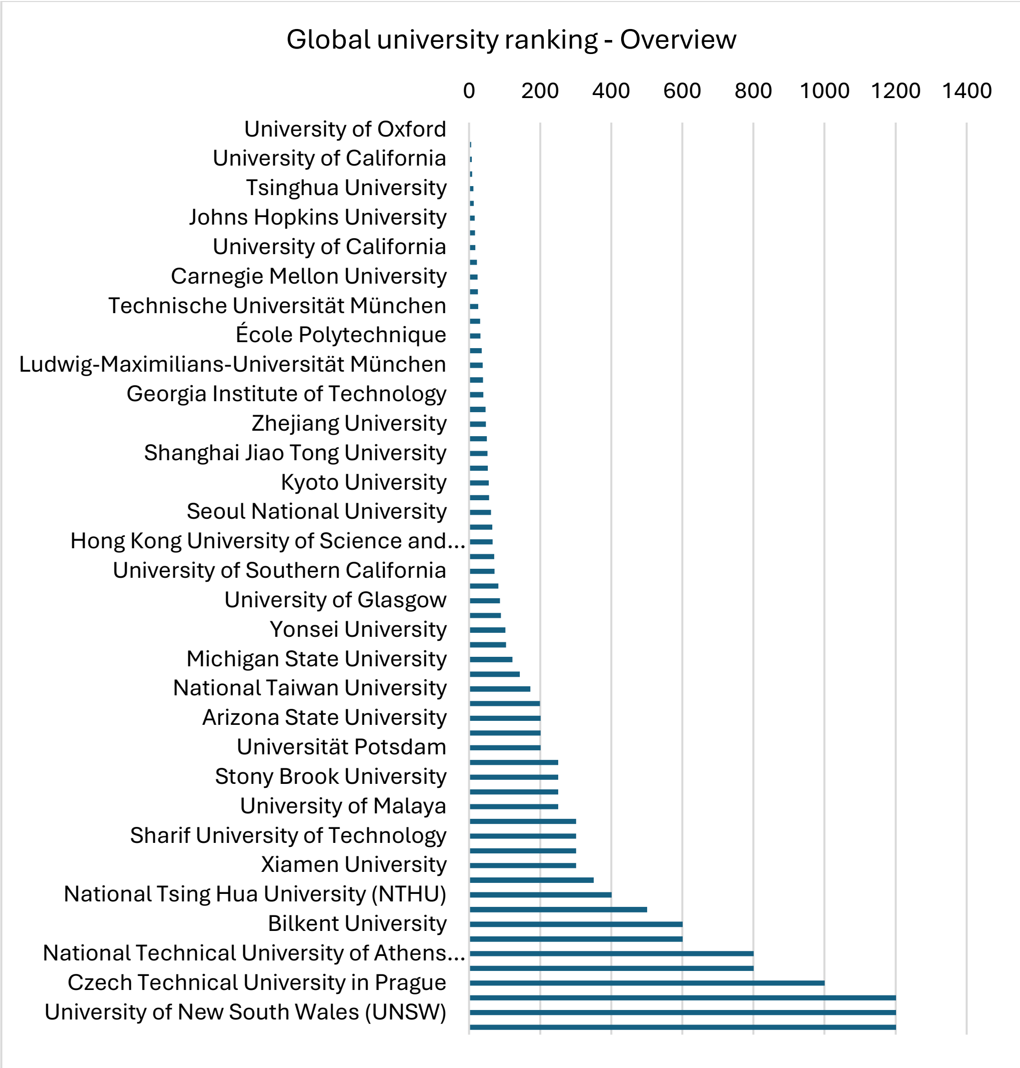

Figure 5: General overview of the global university ranking (NeurIPS 2025 data)

Figure 5 shows a general listing of the 63 universities, showcasing some names as examples, whereas the full list can be found under chapter 7 Appendices, *Annex 1_University Ranking*. Furthermore, several universities achieved the same number or range of points in the ranking, which can be seen in Figure 5 with the examples of rankings 201 (3 institutions), 251 or 301 (4 institutions each). For better insights, the top 20 global universities were listed under Figure 6 to narrow down the regional distribution of the leading facilities in 2025. The University of Oxford has been leading the rankings since 2022 (including 2026), holding the first place for the UK, followed by the USA on place 2 and 3. Among the list for the top 20, 8 are located in countries other than the USA or UK – such as China, Singapore or Germany – demonstrating nevertheless the strong dominance of UK and American universities by covering 60% of the list in Figure 6.

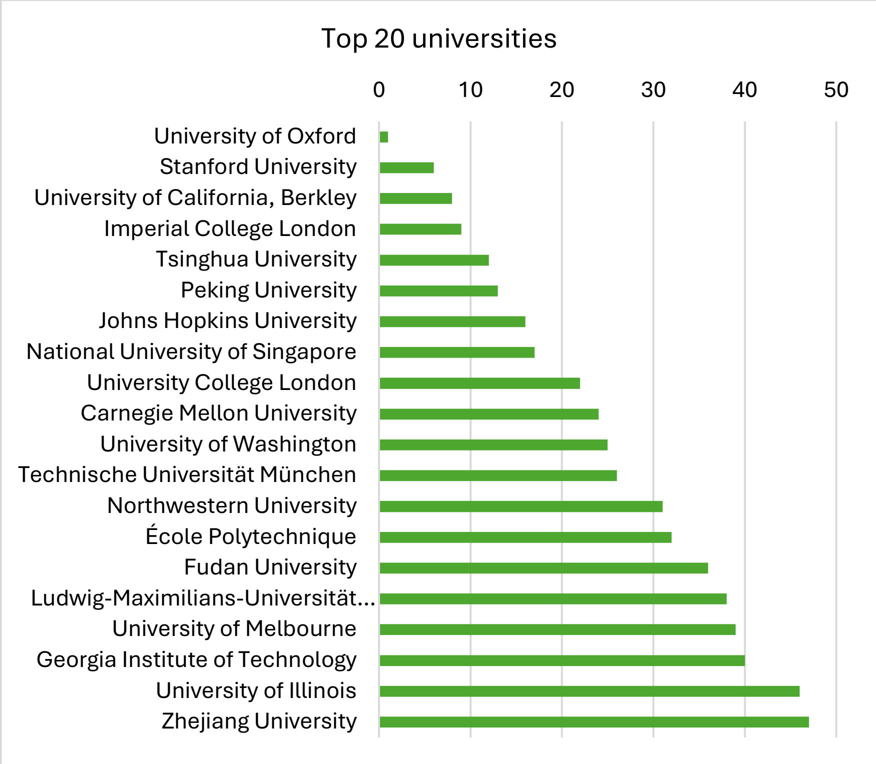

Figure 6: Ranking of the top 20 universities worldwide

MacroPolo created a listing of universities, dividing the rankings into regional hubs: Europe, Asia-Pacific, and Middle East. When comparing the created ranking under Figure 5 from 2025 with all 63 universities to MacroPolo's lists from 2022, 19 universities correspond to those tracked from the Global Talent Tracker. Hence, 8% of the overlapping institutions from 2022 and 2025 are located in Europe (not the EU-27), 19% in Asia Pacific and 3% in the Middle East. MacroPolo did not specifically rank US universities but created a comparison of 2019 vs. 2022 including the "Top 25 Institutions for Top-tier AI Research" (MacroPolo, 2025) which also included Google, Meta or Microsoft Research, hence not exclusively universities. Comparing MacroPolo's top universities globally, under consideration of the different regional subdivisions, to our established ranking in Figure 6 we can see an increase of 10% among the top 20 universities in 2025. This means that an additional 2 universities achieved a global top ranking, representing one researcher each, and a clear dominance of Asia Pacific when it comes to providing high quality education.

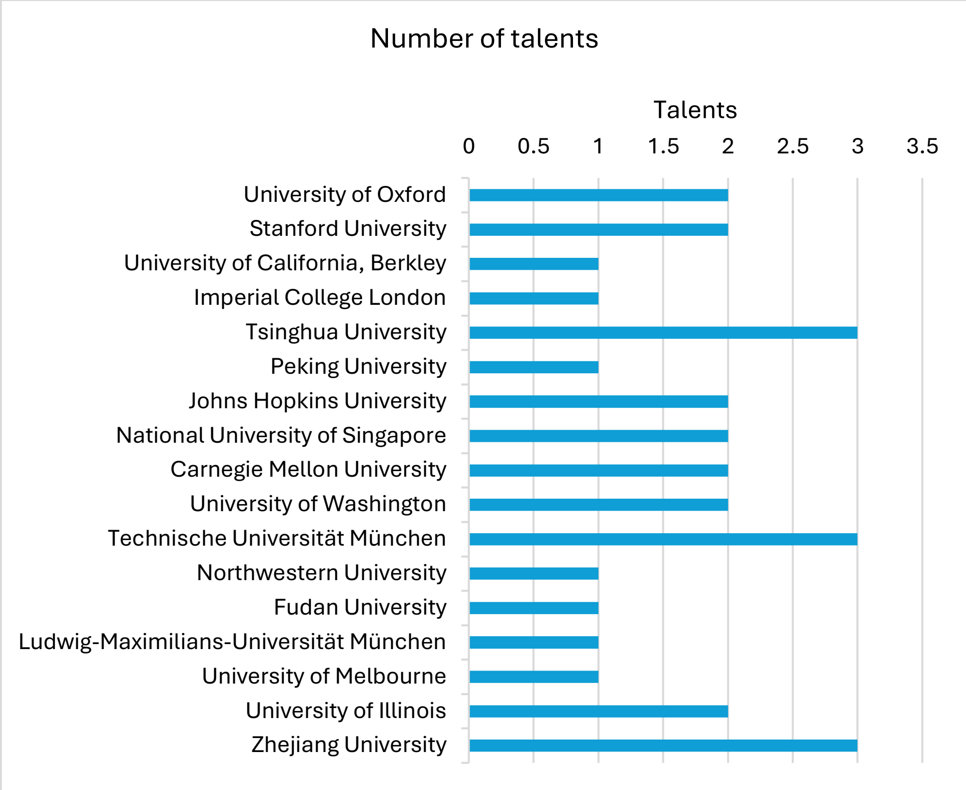

Figure 7: Distribution of the top-tier AI talents among the top 20 universities

Among the top 20 universities in Figure 7, the count of AI talents is depicted in the bar chart, showing that a total of 30% of the tracked researchers finished their education in one of the best institutions worldwide, according to the World University Rankings 2025. This indicates the high-level research force those individuals represent, which furthermore can be seen as a key advantage and asset for a country's workforce.

4.1.2. Regions

Inspired by MacroPolo and to facilitate an easier classification and understanding of the mobility trends at a later stage, the countries retrieved as data points will be grouped in regions for subsequent comparison. The list of the standardized ISO country codes can be seen under Annex 2. In total, 18 ISO codes were found to determine the country of education or employment. National mobility e.g. within the USA or China will only briefly be taken into consideration for this thesis as specifically international changes and AI talent migrations are decisive to observe the AI talent mobility on a global scale.

Consequently, while the USA remains self-explanatory regarding its regions (states), China is including Hong Kong and Scotland is included with the UK. Switzerland is not included in the EU-27 but indeed for Europe. For more detailed analysis, there will be a distinction between EU-27 and Europe in accordance with the geographical and political characteristics. Reason for this is the easier comparison with and continuation of MacroPolo's data. Other countries which stand for themselves in the more detailed analysis of mobility will be grouped together in broader regional spheres. Those are Australia, Canada, China, India, Iran, Israel, Japan, South Korea, Malaysia, Russia, Rwanda, Singapore, Turkey and Taiwan.

- Africa: Rwanda (RW)
- Asia Pacific: Australia (AU), China (CN), India (IN), Japan (JP), South Korea (KR), Malaysia (MY), Singapore (SG), Taiwan (TW)
- EU-27: Czech Republic, France, Germany, Greece, Italy, Netherlands, Poland, Slovenia
- Europe: Czech Republic, France, Germany, Greece, Italy, Netherlands, Poland, Russia (RU), Slovenia, Switzerland (CH), Turkey (TR), UK
- Middle East: Iran (IR), Israel (IL)
- North America: Canada (CA), USA

Despite the size of the country and the fact of it also being part of Asia Pacific, Russia was added to Europe and not Asia Pacific as the AI talent finished university in Moscow, which is seen as the European part of Russia. The same approach was chosen for Turkey.

In general, it must be stated that the countries' affiliations are not always limited to only one particular region due to the geographical or political circumstances. Therefore, a common classification was used following the United Nations Statistics Division (2026).

4.2. Mobility Patterns

The mobility patterns will be divided into the subchapters of producers and attractors of AI talents, resembling the researchers' emigration from the education countries and the talent immigration to their employment countries, to conclude the dominant mobility corridors of the collected data.

4.2.1. Main “producers” of AI talent

Starting with the evaluation of the countries or regions which produced the most AI talents, the base for all further calculations in this subchapter are the territories that educated the AI talents and therefore function as the regions of emigration. From the total number of 18 retraced zones (see *Annex 2_ISO Codes*), 13 of them count to the regions that the AI talents left after completing their university. Of those 13, we can observe 4 main levels of percentages which all regions share as can be seen in Figure 8. The lowest percentage of emigrating AI talents show Canada, Iran, Russia and Rwanda with 4% from the total of all top-tier researchers who left their country of education. The following regions in percentage terms show double the amount of moving AI talents, including the EU-27, Israel, Singapore, Tawain and the UK with 8%. Australia and China are right above with 9% of talent outflow whereas the highest figures of talent emigration after graduating can be noted for India and the USA with 13%.

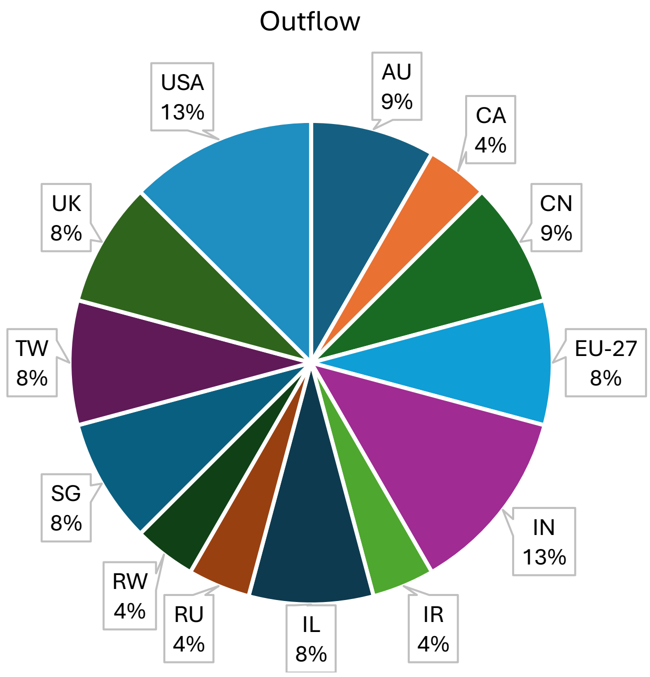

Figure 8: Percentage of AI talents that finished their last degree in the respective countries

Figure 8 serves as an illustrative example that neither the size of a country, nor the educational quality are the main drivers for the decision to remain in the same country or bloc of which the studies were completed in, referring to the top 20 universities of which several stem from the USA or UK.

4.2.2. Main "attractors" of AI talent

As a continuation and completion for the question of global movement, the primary attracting countries of researchers must be placed in opposition to the emigration countries to gain an understanding of AI talent mobility.

Figure 9 shows the countries / blocs and percentages of AI talents who chose their employment in the respective region. The first and most obvious change compared to Figure 8 is the count of countries / blocs, indicating that the territories of immigration or in other words the attractors of top-tier AI talent are less than those of emigration. Some regions therefore show no employment increase of AI researchers after their graduation in another area. As a reminder, these numbers solely refer to the percentage of actual mobility of immigration. The retention rates and the regional movement are not included in the analysis depicted in Figure 9.

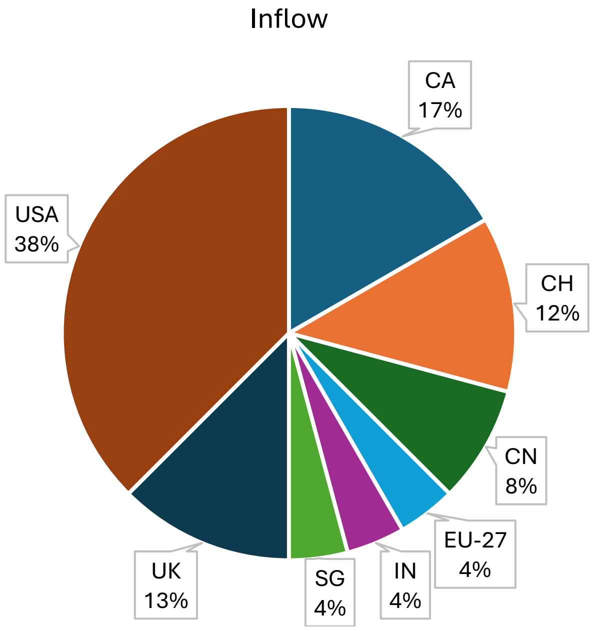

Figure 9: Percentage of AI talents that are employed in the respective countries

Another distinctive feature in contrast to Figure 9 are the results with a broader range of percentage per region, only 3 of them sharing the same increase with 4%, starting with the EU-27, India and Singapore. A jump to double the amount can be observed from the first to the second percentage level with 8% of AI talents starting to work in China, followed by Switzerland with 12%, the UK with 13% and Canada with 17%. What stands out though is the considerable gap between Canada and the next and last country regarding AI talent attraction, which is the USA with 38%.

The USA is again the country with the highest percentage of AI talents, only this time being the main attractor of employment for the top-tier AI talents of this data analysis. While 7 regions share 62% of the total number of employers, the USA alone accounts for more than a third, appearing to be the number one country of employment choice.

4.3. Mobility development since Macro Polo

To track and define development or possible shifts of global AI talent mobility we will first depict and describe MacroPolo's outcomes from 2022. MacroPolo splits its results into several subcategories, showing the findings and development throughout the years from 2019 onwards until 2022, including some updates from the year 2023. (MacroPolo, 2023) As this thesis focuses on the development since the AI tracker's findings after 2023, the comparison figures on the website from 2019 will not be taken into detailed consideration. MacroPolo divided the findings into global outcomes and afterwards regional dives where the numbers for Europe, Asia-Pacific, and Middle East were described more closely. Regarding the global research outcomes, this thesis will particularly focus on the comparison of the following insights which MacroPolo refers to (MacroPolo, 2023):

- Countries of origin of top-tier AI researchers
- Leading countries where top-tier AI researchers work
- Portion of top-tier AI researchers working abroad vs. staying home

Starting with the first one mentioned, Figure 1o shows the percentage of education countries, or as MacroPolo indicates "countries of origin of top-tier AI researchers", based on the country of education. Looking at the results from 2022, China was dominating the global rank regarding "creating" the most AI talents on a university level. Hence, most top-tier researchers finished their degree in China with 47% of all research paper authors from MacroPolo's data set, followed by the USA with a significant gap difference of 18% and Europe with 12%. At this point it must be stated that Europe includes Switzerland and excludes Russia.

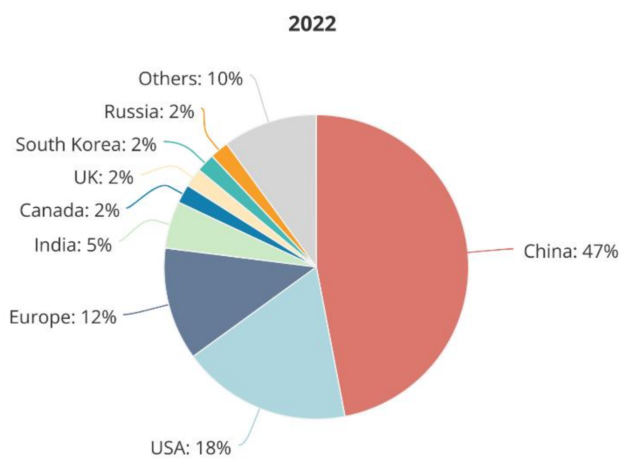

Figure 10: Distribution of education countries for AI talents in 2022 (Source: MacroPolo, 2023 - retrieved in October 2025)

Russia is part of Asia in the evaluations of the AI talent tracker. (MacroPolo, 2023) India marks 4th place with 5% before Canada, the UK, South Korea and Russia sharing the same 2% rate.

To compare the data of Figure 10 with the collected data for this thesis, the overall numbers of education background must be determined before, implying that the outflow Figure 8 needs to be expanded for an inclusion of the AI talent retention numbers. The sum of talent outflow (talents who left their education country) and retention (talents who remained in their education country) delivers the overall number of how many researchers finished their degree in which location. The top 3 educational regions in Figure 11 with the thesis data are the same as MacroPolo's in Figure 10 with a different ranking. Instead, the USA mark the first place with 25%, the EU-27 – which are equivalent with Figure 11 excluding Russia and the UK – second place with 22% and third China with 16%. South Korea scores next with 8% of all retrieved AI talents having obtained their degree in this country, followed by the UK with 6%, and India and Israel sharing an educational talent production of 4%.

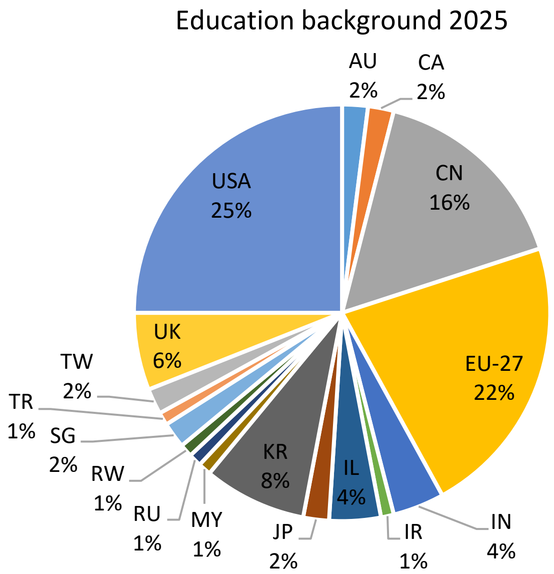

Figure 11: Distribution of education countries for AI talents in 2025

The countries with the lowest rates of university graduates are Australia, Canada, Japan, Singapore and Taiwan with 2%, and finally Iran, Malaysia, Russia, Rwanda and Turkey with 1%.

Comparing Figure 10 to Figure 11, China shows a huge decline in AI talent production of approximately 66% from 2022 to 2025. The USA on the other hand shows the opposite trend with an increase of talent production from around 39%, as well as Europe or the EU-27 with an increase of 83%. One notable exception in the two figures is South Korea, representing a major increase as an educational background country for the gathered AI talents by quadruplicating the original 2% to 8%. A similar trend can be observed with the UK which tripled the percentage to 6% in 2025. In summary it can be stated that the trend of educational background location among the top-tier AI talents appears to shift from Asia (dominated by China) towards Europe and the USA, looking at the top three percentages. Nevertheless, despite having a lower proportion than other regions, Asia (dominated by South Korea) still represents a crucial part of the overall distribution regarding the talents' education.

Coming to the AI talents' location of employment. MacroPolo's statistics from 2022 in Figure 12 already at first glance show a very similar distribution in comparison to the figures of the previous ones. Hence, the USA dominates the ranking of the regional AI talent attractors with 42%, followed by China with 28% and Europe's 12%. Again, we can observe the same three blocs dominating the first ranks – both for place of education and employment – with a change of first place between China and the USA. (MacroPolo, 2023)

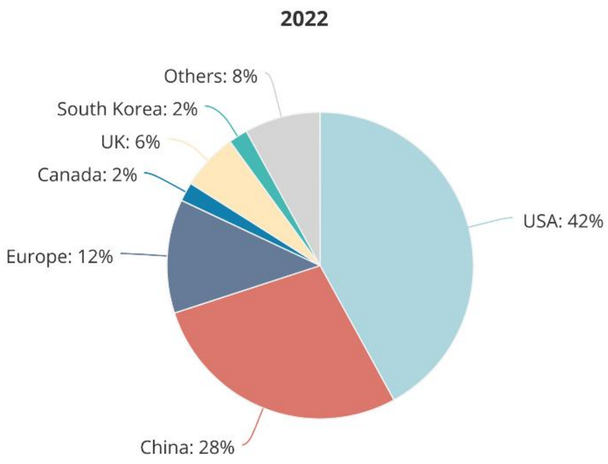

Figure 12: Distribution of employment countries for AI talents in 2022 (Source: MacroPolo, 2023 - retrieved in October 2025)

Another remark here is that in comparison to the "producers" fewer "attractors" appear in Figure 12. Here the UK comes next after the dominant three blocs with 6%, before the only other two specific countries which are Canada and South Korea with 2% each, indicating the trend of AI talents moving towards "Western" locations with the main exception of China. (MacroPolo, 2023)

In opposition to MacroPolo's findings, we can observe a different outcome for the results from the 2025 data. The approach is the same as for the Education background from Figureb12 but instead of combining the outflow and retention numbers, Figure 13 includes the inflow (talents who start working for a country) and retention numbers. One distinctive feature which can be observed directly is the number of regions which show in Figure 13 for the year 2025 in comparison to Figure 12. It should be noted at this point that MacroPolo summarizes several regions under the term "Others" without clearly indicating which countries are included for the chart in Figure 12. The "Others" sections are only defined in the charts for the "Regional Dives", focusing on Europe, Asia-Pacific, and the Middle East. (MacroPolo, 2023)

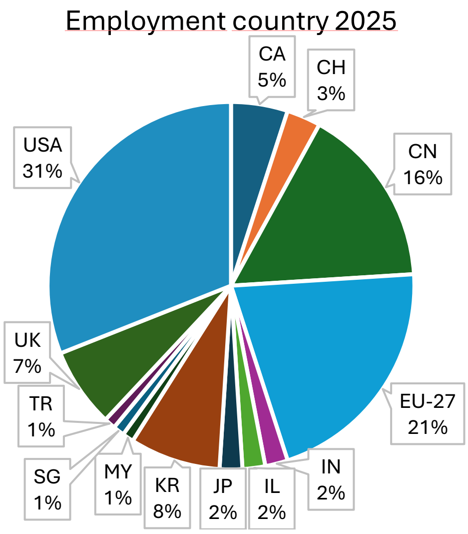

Figure 13: Distribution of employment countries for AI talents in 2025

Continuing with Figure 13 *Employment country 2025*, from the total of 18 regions identified, 13 appear in the analysis to the left, excluding 5 countries without inflow and retention which are Australia, Iran, Russia, Rwanda and Taiwan.

Like in the statistics before, the same 3 blocs also appear in this evaluation as the major ones, namely USA, EU-27 and China. One similarity can be observed for this ranking: the EU-27 is on place 2 with 21% after the USA with 31% and China with 16% AI talent employment ratio. Hence in 2025, for both the country of education and employment the EU-27 score 2nd place after the USA, and with China on rank 3 with 16%.

Comparing MacroPolo's data from 2022 to 2025, we can see that the USA in both charts dominates the ranking of countries with a reduction of around 26%. The EU-27 in the meantime increased the attraction of AI talents by 75%, showing a significant increase in 2025 compared to 2022. China also loses numbers within the 3 years of comparison, showing a reduction in the figures by approximately 43%, whereas South Korea as for the prior examination regarding the country of education again shows four times higher numbers of employed AI talents (compare to Figure 10&11). The UK indicates an increase of more or less 16% from 2022 to 2025 and Canada increases their top-tier AI workforce by 150%.

4.3.1. Net mobility flow

To graphically depict the above collected data, Figure 14 shows the decrease and increase from education country vs. employment country indicating the number of researchers next to the countries / blocs. On the left side under "Education" we can see the 13 regions as AI talent producers, opposed by the 8 “Employment” territories the talents went to. This data shows the mobility without retention numbers, meaning excluding the researchers which stayed in the country / bloc of education. To give an example: China shows 2 AI talents under “Education” and “Employment”. While one could assume that this indicates the same amount of AI talents who finished their degree in China and therefore stayed in China for employment, the talents are not to be mistaken as the same people. This means that the 2 talents having left China after their highest finished university degree on the left side chose another country for their employment, whereas the 2 talents appearing on the right side chose to work in China after finishing their degree in a different country / bloc.

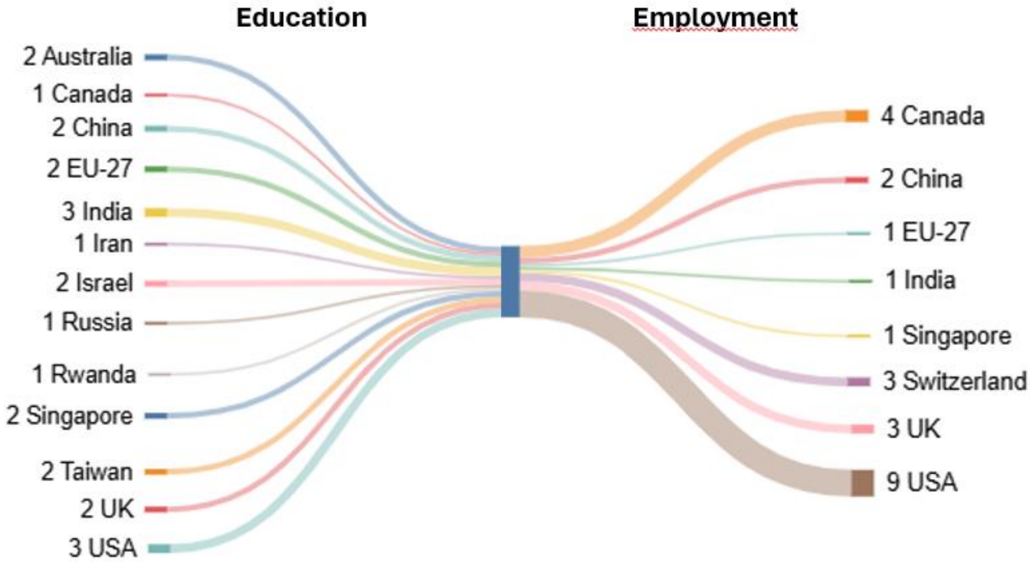

Figure 14: Mobility flow from education to employment country in 2025

Consequently, regional mobility is also excluded in Figure 14 as the question of retention and possible regional mobility will be targeted below as those two aspects are logically more closely intertwined.

Coming back to Figure 14, some countries / regions show a total loss of AI talents, meaning that researchers left after education and no additional ones arrived for employment. Meanwhile others show a strong increase or decrease of talents:

- Total loss of AI talents: Australia, Iran, Israel, Russia, Rwanda, Taiwan
- Decrease of AI talents: EU-27 (50%), India (66,67%), Singapore (50%)
- Increase of AI talents: Canada (300%), UK (50%), USA (200%)
- Attraction of AI talents: Switzerland

From the above list we can observe a tendency of geographical hubs towards talent attraction or loss. The group of total loss of talents appears to be more spread across the globe, covering regions of the Middle East, Asia Pacific and Africa. As mentioned above, Russia was not included to the Asian sphere due to the university location in the geographical European part.

The shares of decreasing talents are reduced to 3 main blocs in 2 regions, EU-27 and Asia, whereas the increase of AI talents is limited to the English-speaking places with the UK and North America. Furthermore, the percentage of "producers" (decrease) vs. "attractors" (increase) of talents differs significantly from another, showing a higher inflow into especially North America with up to triple the number than was the talent outflow from the USA, resulting in a net inflow of 6 people. Switzerland in the meantime is the only country where gain from zero can be reported, starting with no AI talents finishing education but 3 individuals from the talent pool choosing Switzerland for employment.

In addition to the more detailed calculations and graphs above, the net mobility flow in Table 1 will break down the overall figures and calculate the net flow of our top-tier AI researchers. To create a better representation of the actual net flow, the Migration Effectiveness Index (MEI) calculation was used for creating a listing of the countries. (Bell et al., 2002) For calculating the relative net migration percentage, the MEI uses the formula MEI = $100 \{\Sigma |D_i - O_i| / \Sigma (D_i + O_i)\}$, D_i indicating the total inflow of a region and O_i the total outflow, which translates into the following

$$\text{Relative Net \%} = 100 \times \frac{\Sigma\,|\text{Inflow} - \text{Outflow}|}{\Sigma\,(\text{Inflow} + \text{Outflow})}$$

Country	CH	CA	USA	UK	CN	EU-27	SG	IN	AU	IR	IL	RU	RW	TW
Rel. Net	100	60	50	20	0	33.3	33.33	50	100	100	100	100	100	100

Table 1: Percentual net mobility flow per country

The black numbers are the positive relative net percentage values per region whereas the red ones indicate the negative relative net percentages. This overview shows in descending order which countries benefited most from talent mobility, based solely on the dataset retrieved for this thesis. Hence, Switzerland represents the main beneficiary when it comes to the relative net percentage after the MEI calculation, followed by Canada with a 60%, the USA with a 50% and the UK with a 20% net.

4.3.2. Retention and domestic mobility

Two other important factors to consider are the retention rate and the national mobility within one country / bloc, as both can shift the outcome of the mobility trends tremendously. To start with the retention rates, we will compare MacroPolo's data in Figure 15 with the data gathered in 2025 under Figure 16 *Retention rate 2025*.

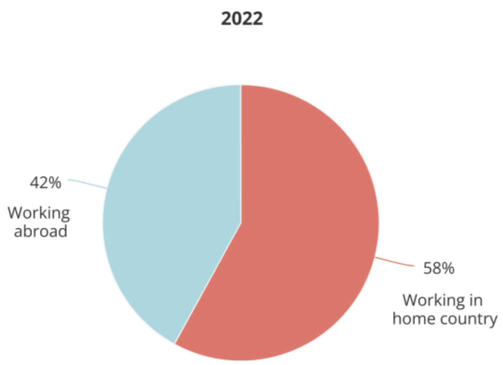

Figure 15: Retention rate in 2022 (Source: MacroPolo, 2023 - retrieved in October 2025)

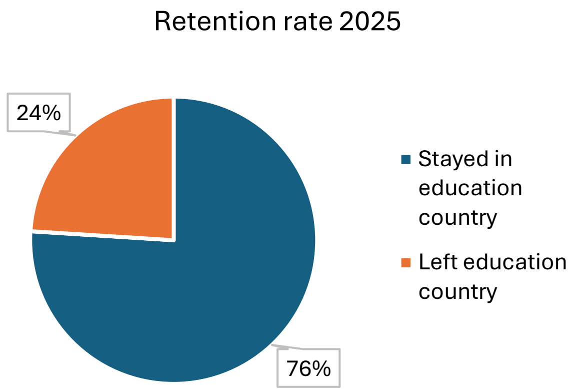

Figure 16: Retention rate of NeurIPS data in 2025 overall

MacroPolo created the chart (Figure 15) to analyze the "proportion of top-tier AI researchers working abroad vs. staying home". (MacroPolo, 2023) This pie chart shows the trend which could be observed in 2022, indicating that the majority of researchers with 58% decided to be employed in their home country in contrast to 42% choosing to seek employment outside their home country. The term "home country" refers to the education country as per MacroPolo's definition on their website, corresponding to the definition "stayed in education country" from Figure 16.

When we look at the retention rate data of 2025 under Figure 16, just three years later than MacroPolo's analysis, a tremendous shift towards staying and being employed in the home country can be observed. Hence, 76% of the top-tier AI talents start working in their country of education and do not go abroad for the job, while the remaining 24% start to work in a different country than the one they finished their degree in. The retention trend from 2022 to 2025 therefore increased by approximately a third with 31% of more researchers deciding to continue their employment in their education country. At the beginning of this chapter, it was stated to focus on the MacroPolo data from 2022, disregarding the statistics from 2019. Nevertheless, the importance of the retention rates topic becomes increasingly clear by just briefly comparing the data of 2019 to understand the exponential increase which happened within just a couple of years. In 2019, the proportion of AI talents being employed abroad or in the education country was 55% vs. 45%, meaning that the majority of people decided to seek employment outside their country of education. (MacroPolo, 2023) This shows, that in general the tendency to change location and work abroad increased by approximately 29% within the years 2019-2022, and another 31% until 2025, giving a total of rounded 69% increase within 6 years. Due to the growing importance of this topic, which will also play a crucial role for future employment strategies tailored to AI specialists, a more detailed overview over the thesis data regarding retention can be seen in Figure 17.

Looking at the rates in Figure 17, a similar trend in comparison to the percentage rates of the education and employment regions can be observed with the top 3 blocs consisting of the USA with 29%, the EU-27 with 26% and China with 19%. However, it is noticeable here that the percentage rates of them are not as far apart, similar as they were in previous analysis in Figure 11.

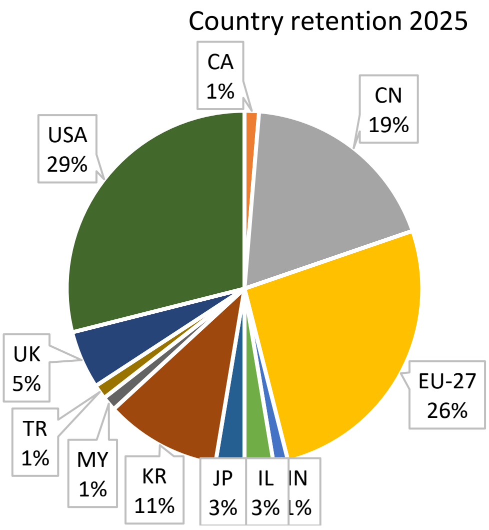

Figure 17: Percentage of AI talents per country who stayed in the employment country

To take a closer look at the overall mobility, the regional aspect of talent movement should be considered as well, if just briefly. Therefore though, solely the geographically extensive countries or regions will be examined here as the mobility within a single smaller country does not affect the impact of AI talent mobility as much as within e.g. States of America or European countries. For better understanding: while Canada, China or the USA clearly exceed the geographical expanse in terms of square meters compared to e.g. Turkey or Taiwan, it was deemed not necessary to examine every country's regional mobility. To give an example: the size of Malaysia is with around 330.000 km^2 not significantly bigger than the size of Italy with around 310.000 km^2. South Korea on the other hand makes approximately one third of the prior two whereas Rwanda another third of South Korea. For this reason, the biggest blocs or countries will be examined in more detail which are Canada, China, Europe, India and the USA, all sharing the size of an area with over 3.2 million km^2.

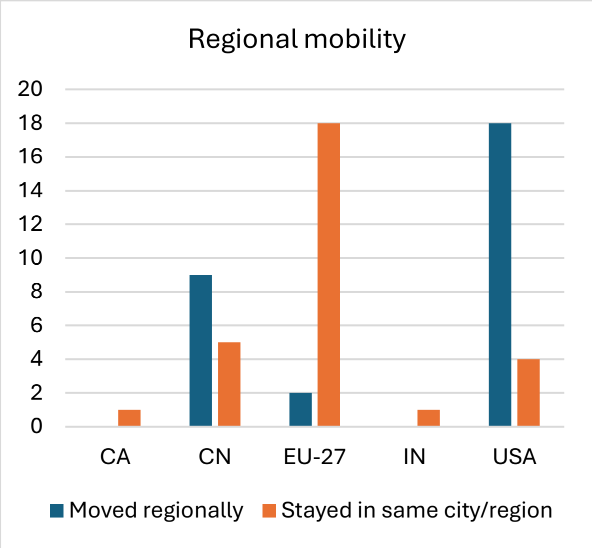

Figure 18: Percentage of AI talents who stayed in / moved within the same country / bloc

Hence Figure 18 shows the analyzed regional AI talent mobility by number of talents within the same country / bloc of the 5 just mentioned. At first glance, two major observations can be made. First, Canada and India have one in the country remaining AI talent each who also started working in the same city they graduated from. Therefore, no regional mobility was seen in those countries.

On the other hand, the results for the EU-27 and USA display the opposite trend. While in the EU-27 most talents work and stay in the same country they were educated in, the regional movement within the USA is much higher than the remaining. To put the diagram into perspective: China's regional mobility vs. remaining of the talents is 64% to 36%, in the EU-27 10% go to another country after their university while 90% start working in the same country they finished their degree in, and in the USA 82% move to a different state after graduating compared to 18% who work in the same state of graduation. Taking the percentage of AI talents retention into consideration, which was shown above, the number of 76% of global retention could be debated to be altered. Nevertheless, the core of this thesis is to elaborate on the global shift of AI talent mobility under influence of the CHIPS and Science Act 2022, which will be clarified in the following chapter.

5. Results overview and Future outlook

This final chapter serves as a recap overview to answer the three research questions which were introduced in chapter *1.3. Research Gap*. While the RQ1&2 will be answered in subchapter *5.1. Results overview*, the third one will be addressed under *5.2. Future outlook* due to its anticipating nature.

5.1. Results overview

RQ1: *Were AI talent mobility trends, regarding education vs. employment country, influenced by the CHIPS and Science Act (2022)?*

Let us now look at the influence which the CHIPS and Science Act 2022 exerted on the top-tier AI talent mobility according to our data analysis and research. Reasons for the question about the feasibility of connecting the AI talent mobility results to the CHIPS Act might be the various possible influences economies, politics and laws have on all regions on a global scale. A direct proof for the correlation between the mobility and the CHIPS Act might not be 100% verifiable, nevertheless, the data results may allow to deliver supporting arguments.
The results of the global AI talent mobility that were introduced throughout chapter 4 align with the argumentation of the USA being the main attractor of AI talent in comparison to other destinations. Since most talents – number wise – choose their employment in the USA after graduation, the common opinion of the USA playing the dominant role in the AI sphere could be considered true. (Boston Consulting Group, 2025, Wang & Siler-Evans, 2026, Hook, 2025)

From / To	AU	CA	CH	CN	EU-27	IN	IR	IL	JP	KR	MY	RU	RW	SG	TR	TW	UK	USA
AU		1															1	
CA		1																1
CH																		
CN				14										1				1
EU-27					20													2
IN			2			1												1
IR		1																
IL					1			2										1
JP									2									
KR										8								
MY											1							
RU																		1
RW		1																
SG																	1	1
TR															1			
TW		1																1
UK			1	1													4	
USA				1		1											1	22

Figure 19: Heat map showing where AI talents were educated (From) and are now employed (To)

The heatmap in Figure 19 shows the transition of education country to employment country per talent exactly. The rows represent the countries of education (From) and the columns the countries of employment (To).

The highest numbers are indicated with red and the lowest with yellow. To take the USA as an example: the number 22 with the row and column "USA" signifies the talents who finished their degree and started their employment in the USA, in other words the retention number. The other numbers in the row "USA" are the outflow, meaning the loss of AI talents to another country, same goes with the column "USA" indicating the attraction of AI talents from abroad.

Some main observations can be derived: the USA seems to continue representing the main driver for AI talent production and attraction, showcasing it to being the most attractive employer country out of all 18 with 38% increase share of moving AI talents. Canada is the second biggest beneficiary of AI talent attraction with a 17% share, making North America in total to the strongest area for global AI talent mobility.

Asia Pacific is definitely the second biggest main driver when it comes to an attractive environment for AI experts, with a total of 37% of talents who were educated in Asia Pacific and 30% of top-tier AI talents choosing to seek employment there after graduation, including the retention (compare to Figure 19).

To summarize: the distribution of education countries for AI talents shifted from 2022 to 2025 tremendously, showing a more even distribution of educational background regions after the CHIPS Act. While before the Act China dominated as AI professionals' producer, the numbers after the Act show a dominance of the USA. The same can be stated for the attraction side of the mobility, with the USA dominating before and after the Act was established, although the figures after the Act show a more balanced result with the USA still dominating but Canada, China and Europe having an increased share of AI talents.

As a result, for RQ1 it can be stated that the CHIPS and Science Act 2022 impacted the global AI talent mobility with a continued focus on the USA as the overall main attractive region for AI talents. Nevertheless, the Act seems to have caused a trend toward increasing fragmentation of top-tier AI professionals' mobility trends. If we look at the Inflow from Fig. 9 and group the analyzed countries into the defined regions, we see that North America accounts for more than half of the total percentage of AI talents received from all attraction countries. The second largest group is Europe, with the UK and Switzerland leading with triple the percentage of the EU-27 each, followed by Asia-

Pacific. The findings support that the CHIPS Act amplified the attractiveness of the USA.

RQ2: ***How do the mobility patterns observed in the NeurIPS sample continue after MacroPolo's Global AI Talent Tracker (2022)?***

Pointing back to the charts under chapter 4, the comparison of MacroPolo's findings and the identified dataset of this thesis shows a general alignment between the results of the AI web tracker from 2022 and the data from 2025. The retention rate appears to be the most obvious development from all, showcasing the trend towards a preferred option of staying in the country of employment (see Figure 15&17). Unfortunately, MacroPolo did not distinct the main retention countries which complicates a more thorough analysis about which regions dominate the trend of AI talents remaining after their degrees. (MacroPolo, 2023) It's particularly the retention rate, which impacts the mobility numbers in a neutral way. The heat map (Figure 19) shows how many top-tier talents stay in their education country, especially in China, the EU-27 and the USA, but mostly in other countries which are not among the top employment destination countries, such as Israel, Iran and South Korea. It could be concluded that the smaller countries tend to manage retention better which leads to a national benefit of the AI talent workforce. The example of the UK on the other side shows, that other factor besides country size drive the decision whether to migrate or not (see Figure 19), leading to a high mobility rate in comparison to the three main blocs China, EU-27 and USA. Measuring the mobility patterns only by the outflow (Figure 8) and inflow (Figure 9) of AI talent with MacroPolo (Figure 10&12), we can observe a much more diversified education country pool in the 2025 education background data (Figure 8) with little variation among the countries. When it comes to inflow exclusively (Figure 9) we can see more alignment with MacroPolo's data (Figure 12), revealing greater differences between the regions in general but showing both higher numbers for China and the USA. The main difference here lies in the numbers for Canada and the UK, being represented in Figure 12 from 2022 as destination countries, though by far exceeded by the 2025 data in Figure 12 with 17% (CA) and 13% (UK) instead of 2% (CA) and 6% (UK). After inclusion of the retention numbers (Figure 13), the 2025 results came much closer to MacroPolo's (Figure 12), indicating again the dominance of the three main blocs. The education background comparison shows the main differences, no matter if just by looking at the even distribution of talents for solely the "producers" of talents in Figure 8, or after the inclusion of the retention numbers in 2025 (Figure 11). MacroPolo's results of China dominating the global market in the education of top-tier AI talents in 2022 therefore cannot be confirmed for 2025. Nevertheless, Asia Pacific in total represents a driving force for AI talent related and mobility influencing coherences. One main issue hindering a more thorough comparison of the data from 2022 and 2025 is MacroPolo's grouping of countries under the category “Others”, not explicitly specifying which ones are included. (MacroPolo, 2023)

In general, it can be said that the results depend heavily on the perspective from which the data is viewed, whether retention is included or not, how countries are grouped and declared to regions (differences in geographical and geopolitical regions), as well as which aspects are used as a benchmark for defining top-tier AI talent or mobility influencing factors. The Stanford Institute (2026) explains this statement by addressing the various strengths different countries are leading in: China leads the global market in “publication volume, citations, and patent grants”, whereas the USA dominates in “higher-impact patents and notable models”, and South Korea in “AI patents per capita”. Regarding AI patents, Europe holds a share of only 2.95% of the global market from 2021-2024 in comparison to the US 12.06% or Chinas 74.24%. (Stanford Institute, 2026) The only strength the EU-27 has over its competitors is regulation, which deepens the gap to China and the USA regarding AI talent retention, research or venture investment. (Batista Cabanas, 2026) South Korea is like China one of the main countries regarding AI robotics (Interact Analysis, 2025) and Singapore for example emerged as one of the leading innovation hubs “attracting investment in IoT, robotics, and artificial intelligence technologies”. (Statista, n.d.)

Despite all, the answer to the question of the continuing mobility patterns from the data sample can be summarized as follows: The results continue to largely align with MacroPolo's findings in the years up to 2025. The USA maintains an overall dominance, both in terms of countries where AI talent is educated and employed. China and the EU-27 hold the second and third ranks. Across regions, North America, Europe, and the Asia-Pacific are the dominant for AI talent. Africa and South America are not depicted pivotal for the AI sector. The Middle East is significant as AI talent producers in 2025, with Iran and Israel appearing as main education countries, which is already stated by MacroPolo in the results from 2022: “Israel and Iran command the lion's share of top-tier AI talent supply in the Middle East”. (MacroPolo, 2023)

5.2. Future outlook

RQ3: ***Which mobility trends for top-tier AI talent can be expected in the future, and how should nations adjust their tactics to remain competitive?***

The global development of AI talent mobility is in a constant period of accelerated change. The findings of this thesis suggest that competition for top-tier AI researchers will intensify significantly over the next decade, shifting the mobility trends and likely also the leading countries in the AI sector overall. One example is the race between China and the USA which has been going on for some years. Studies underline the narrowing gap between the two countries which furthermore could result in a mayor change of global AI dominance. Hence, the Stanford Institute indicates the AI models' performance of China and the USA (Figure 20) derived from Arena data which can be understood as a "community-powered platform for understanding AI performance". (Arena AI, n.d.)

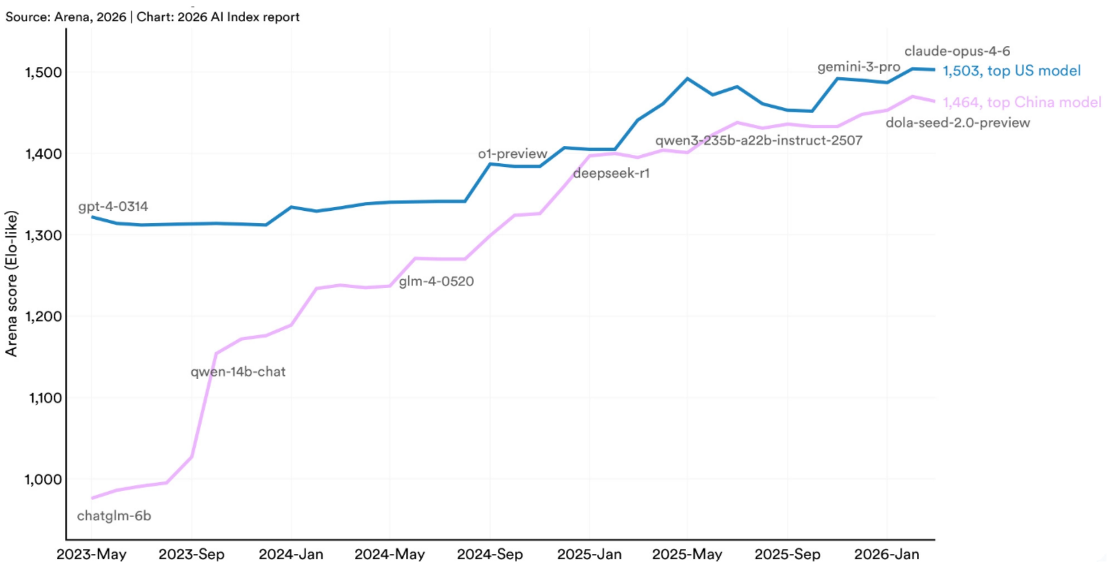

Figure 20: Performance of top US vs. Chinese AI models on the Arena (Source: Stanford Institute for Human-Centered Artificial Intelligence, 2026 - retrieved in April 2026)

Figure 20 shows the incredible speed with which Chinese models are catching up to those from the U.S. in less than three years, leading to the fact that U.S. models are only 2.7% ahead of their Chinese counterparts. (Stanford Institute, 2026) Even though the USA still maintain their dominance in market growth and LLM site visits, the fact that Chinese AI models are four to six times cheaper and LLM site visits increased by 460% in only two months in 2025, China is likely to overtake the USA in the near future as the leading country in AI matters. (Wang & Siler-Evans, 2026) Mobility trends in the

USA may therefore slow down in terms of employment, but they could shift towards the East or in broader terms Asia-Pacific, whether it would be in person or due to remote work. It is then pointed out that the retention numbers have started to rise tremendously within only three years (Figure 15&17), indicating that staying in the education country is becoming more appealing in the future as well.
On the other hand, research indicates a notable trend: Industry is becoming increasingly attractive compared to Academia, especially for leading AI researchers. The Stanford Institute (2026) depicted these changes in their research about the distribution of “Number of parameters of notable AI models by sector, 2003-25”, showing that Academia decreases in importance compared to Industry or Industry-academia collaboration. The general trend that AI research is being driven primarily by industry rather than academia is causing concern among scientists, as there is a risk of a phenomenon called “brain drain,” which could result in academia losing ground to commercial priorities. (BioInfoCodes, 2025) The resulting trend, in turn, is that AI talents choose their employment country primarily based on the available job opportunities after graduating: “Prestigious academic institutions such as MIT and Stanford appear to be primary sources of researchers migrating to leading technology companies like Google and Microsoft.” (BioInfoCodes, 2025) A development which is then again questioning the assumption of an increased percentage of retention per country in the future, indicated by the rapid growth of retention rates within just three years (Figure 15&17). Hence, the mobility of top-tier AI researchers will most likely be dominated by the globally leading AI companies who offer the most appealing remuneration, putting the USA once again at the top of the list of main destinations when we look at the top AI company ranking (Table 2). This development might shift the focus away from academia and prestigious universities, which in turn forces countries that provide top-tier education to adopt a better strategy for retaining the top-tier AI talent they have trained. However, a major concern for this development is the long-term effect this “brain drain” impacted mobility could inflict on the whole sector. Hence, limitations in the diversification in the AI sector could lead to decreasing criticism against ethical issues and disregard societal needs or safety controls, as studies predict. (Jurowetzki et al., 2025)

Another important factor to consider is the regional distribution of AI development across the globe. As the CHIPS Act intends to favor the more even distribution of AI related facilities building and development (U.S. SCCST, 2022), also other countries or blocs like Europe show big differences in AI advances in different regions.

As the rapidly changing AI environment is a global structural topic which concerns every country or region, staying ahead of the AI race might imply answering questions which are not anymore mainly focused on the technological and economic aspects. Hence, the necessary overall adjustment for nations to consider for future attraction or retention of AI talent may not lie in the area one would first think of when it comes to AI, but instead in the cultural, social sphere. Countries will need to make sure that their societies can use and adapt to the fast-pacing changes of AI in a positive way. The main challenge for nations will be to integrate AI and support stability to its experts and users, rather than just focusing on technical progress and the industrialization of AI research. (Mazarr, 2026)

In conclusion, this thesis has found that the global mobility of AI experts is influenced by government decisions, the quality of research facilities, and each country's aims to be a leader in technology. By comparing MacroPolo’s data until 2022 with the new NeurIPS dataset until 2025, the analysis suggests that the CHIPS and Science Act (2022) can be seen as influential factor for global AI talent mobility. The CHIPS Act did not only push the USA in terms of AI talent attraction and retention, but challenged other countries / regions, such as EU-27, China, Singapore, and Canada, too to remain competitive in the AI sector.

The mobility of AI talents will always be influenced by the rapidly changing geopolitical environment. Nevertheless, those countries which provide easy access to technological resources, free research and working permits will dominate in attracting top-tier AI talent.

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7. Appendices

Annex 1_University Ranking

Source: Times Higher Education. (2026). World University Rankings 2025. https://www.timeshighereducation.com/world-university-rankings/latest/world-ranking

Nr.	University Name	2025
1	University of Oxford	1
2	Stanford University	6
3	University of California	8
4	Imperial College London	9
5	Tsinghua University	12
6	Peking University	13
7	Johns Hopkins University	16
8	National University of Singapore	17
9	University of California	18
10	University College London	22
11	Carnegie Mellon University	24
12	University of Washington	25
13	Technische Universität München	26
14	Northwestern University	31
15	École Polytechnique	32
16	Fudan University	36
17	Ludwig-Maximilians-Universität München	38
18	University of Melbourne	39
19	Georgia Institute of Technology	40
20	University of Illinois	46
21	Zhejiang University	47
22	The University of Texas at Austin	50
23	Shanghai Jiao Tong University	52
24	University of Science and Technology of China	53
25	Kyoto University	55
26	Delft University of Technology	56
27	Seoul National University	62
28	Nanjing University	65
29	The Hong Kong University of Science and Technology (HKUST)	66
30	Institut Polytechnique de Paris	71
31	University of Southern California	72
32	Korea Advanced Institute of Science & Technology (KAIST)	82
33	University of Glasgow	87
34	University of California, Irvine	90
35	Yonsei University	102
36	Freie Universität Berlin	104
37	Michigan State University	122
38	Texas A&M University	143

39	National Taiwan University	172
41	Universität Mannheim	199
42	Politecnico di Milano	201
43	Arizona State University	201
44	Universität Potsdam	201
45	University of Malaya	251
46	Beihang University	251
47	Technische Universität Darmstadt	251
48	Stony Brook University	251
49	Hebrew University of Jerusalem	301
50	Xiamen University	301
51	Technion - Israel Institute of Technology	301
52	Sharif University of Technology	301
53	University of Tsukuba	351
54	National Tsing Hua University (NTHU)	401
55	Indian Institute of Technology	501
56	Bilkent University	601
57	Université de Rennes	601
58	National Technical University of Athens (NTUA)	801
59	University of Ljubljana	801
60	Czech Technical University in Prague	1001
61	University of New South Wales (UNSW)	1201
62	Wrocław University of Science and Technology	1201
63	National Institute of Technology Warangal	1201

Annex 2_ISO Codes

Source: Wikipedia. (n.d.). List of ISO 3166 country codes. Retrieved April 25 2026, from https://en.wikipedia.org/wiki/List_of_ISO_3166_country_codes

ISO Code	Country
AU	Australia
CA	Canada
CH	Switzerland
CN	China
EU	European Union
IN	India
IR	Iran
IL	Israel
JP	Japan
KR	South Korea
MY	Malaysia
RU	Russia
RW	Rwanda
SG	Singapore
TR	Turkey
TW	Taiwan
USA	United States of America
UK	United Kingdom

Annex 3_NeurIPS Data 2025

Source: VizHub. (2024). NeurIPS 2024 interactive visualization. Retrieved August 2025, from https://neurips2024.vizhub.ai/

1. **LLM (1-5)**

Poster	**Country of last Degree**	**Country of current employment**
Talking Heads: Understanding Inter-Layer Communication in Transformer Language Models	Netherlands	Germany
Paloma: A Benchmark for Evaluating Language Model Fit	USA	USA
Scaling Laws for Reward Model Overoptimization in Direct Alignment Algorithms	USA	USA
Unchosen Experts Can Contribute Too: Unleashing MoE Models' Power by Self-Contrast	China	China
Superposed Decoding: Multiple Generations from a Single Autoregressive Inference Pass	USA	USA

2. **Speech (6-10)**

Poster	**Country of last Degree**	**Country of current employment**
FINALLY: fast and universal speech enhancement with studio-like quality	Russia	USA
CoVoMix: Advancing Zero-Shot Speech Generation for Human-like Multi-talker Conversations	China	China
Paralinguistics-Aware Speech-Empowered Large Language Models for Natural Conversation	South Korea	South Korea
IndicVoices-R: Unlocking a Massive Multilingual Multi-speaker Speech Corpus for Scaling Indian TTS	India	India
Unified Speech Recognition: A Single Model for Auditory, Visual, and Audiovisual Inputs	UK	UK

3. **Multimodal LLM (11-15)**

Poster	Country of last Degree	Country of current employment
CoSy: Evaluating Textual Explanations of Neurons	Germany	Germany
DeTikZify: Synthesizing Graphics Programs for Scientific Figures and Sketches with TikZ	Germany	Germany
Towards Semantic Gaze Target Detection	India	Switzerland
CLAP4CLIP: Continual Learning with Probabilistic Finetuning for Vision-Language Models	Australia	Canada
Orchid: Flexible and Data-Dependent Convolution for Sequence Modeling	Canada	USA

4. **Segmentation (16-20)**

Poster	Country of last Degree	Country of current employment
Adaptive Visual Scene Understanding: Incremental Scene Graph Generation	USA	USA
A Novel Unified Architecture for Low-Shot Counting by Detection and Segmentation	Slovenia	Slovenia
MultiOrg: A Multi-rater Organoid-detection Dataset	Germany	Germany
Uncertainty-aware Fine-tuning of Segmentation Foundation Models	USA	USA
Towards Open-Vocabulary Semantic Segmentation Without Semantic Labels	South Korea	South Korea

5. **3D / object detection (21-25)**

Poster	Country of last Degree	Country of current employment
Active Perception for Grasp Detection via Neural Graspness Field	China	China
RETR: Multi-View Radar Detection Transformer for Indoor Perception	Japan	Japan
MonoMAE: Enhancing Monocular 3D Detection through Depth-Aware Masked Autoencoders	China	Singapore

TALoS: Enhancing Semantic Scene Completion via Test-time Adaptation on the Line of Sight	South Korea	South Korea
MVSDet: Multi-View Indoor 3D Object Detection via Efficient Plane Sweeps	Singapore	UK

6. **3D pose estimation (26-30)**

Poster	Country of last Degree	Country of current employment
Polyhedral Complex Derivation from Piecewise Trilinear Networks	South Korea	South Korea
ManiPose: Manifold-Constrained Multi-Hypothesis 3D Human Pose Estimation	France	France
Learning Segmentation from Point Trajectories	UK	UK
SCRREAM : SCan, Register, REnder And Map: A Framework for Annotating Accurate and Dense 3D Indoor Scenes with a Benchmark	Germany	Germany
HOPE: Shape Matching Via Aligning Different K-hop Neighbourhoods	China	China

7. **3D reconstruction (31-35)**

Poster	Country of last Degree	Country of current employment
Gaussian Graph Network: Learning Efficient and Generalizable Gaussian Representations from Multi-view Images	China	China
AV-Cloud: Spatial Audio Rendering Through Audio-Visual Cloud Splatting	Singapore	USA
HumanSplat: Generalizable Single-Image Human Gaussian Splatting with Structure Priors	China	China
ODGS: 3D Scene Reconstruction from Omnidirectional Images with 3D Gaussian Splattings	South Korea	South Korea
Dual Encoder GAN Inversion for High-Fidelity 3D Head Reconstruction from Single Images	Turkey	Turkey

8. **Diffusion (36-40)**

Poster	Country of last Degree	Country of current employment
Is One GPU Enough? Pushing Image Generation at Higher-Resolutions with Foundation Models.	Scotland	Switzerland
Interpreting the Weight Space of Customized Diffusion Models	USA	USA
CosAE: Learnable Fourier Series for Image Restoration	USA	USA
Direct Consistency Optimization for Robust Customization of Text-to-Image Diffusion models	South Korea	South Korea
Neural Experts: Mixture of Experts for Implicit Neural Representations	Israel	USA

9. **Reinforcement (41-45)**

Poster	Country of last Degree	Country of current employment
Mitigating Covariate Shift in Behavioral Cloning via Robust Distribution Correction Estimation	South Korea	South Korea
Federated Ensemble-Directed Offline Reinforcement Learning	USA	USA
Last-Iterate Global Convergence of Policy Gradients for Constrained Reinforcement Learning	Italy	Italy
FactorSim: Generative Simulation via Factorized Representation	Taiwan	USA
Maximum Entropy Reinforcement Learning via Energy-Based Normalizing Flow	Taiwan	Canada

10. **Alternative Architectures (46-50)**

Poster	Country of last Degree	Country of current employment
Spiking Token Mixer: An event-driven friendly Former structure for spiking neural networks	USA	USA
realSEUDO for real-time calcium imaging analysis	USA	USA

Not so griddy: Internal representations of RNNs path integrating more than one agent	USA	USA
Visual Decoding and Reconstruction via EEG Embeddings with Guided Diffusion	UK	China
FactorizePhys: Matrix Factorization for Multidimensional Attention in Remote Physiological Sensing	UK	UK

11. Adversarial Robustness (51-55)

Poster	**Country of last Degree**	**Country of current employment**
Detecting Brittle Decisions for Free: Leveraging Margin Consistency in Deep Robust Classifiers	Rwanda	Canada
Injecting Undetectable Backdoors in Obfuscated Neural Networks and Language Models	Greece	USA
PureGen: Universal Data Purification for Train-Time Poison Defense via Generative Model Dynamics	USA	USA
RAMP: Boosting Adversarial Robustness Against Multiple lp Perturbations for Universal Robustness	USA	USA
Certified Adversarial Robustness via Randomized α-Smoothing for Regression Models	Australia	UK

12. Graph (56-60)

Poster	**Country of last Degree**	**Country of current employment**
Entity Alignment with Noisy Annotations from Large Language Models	China	China
Graph Neural Networks Need Cluster-Normalize-Activate Modules	Germany	Germany
Almost Surely Asymptotically Constant Graph Neural Networks	UK	UK
Revisiting Score Propagation in Graph Out-of-Distribution Detection	USA	USA

[Re] Reproducibility Study of "Explaining Temporal Graph Models Through an Explorer-Navigator Framework"	Netherlands	Netherlands

13. **Federated Learning (61-65)**

Poster	**Country of last Degree**	**Country of current employment**
Ferrari: Federated Feature Unlearning via Optimizing Feature Sensitivity	Malaysia	Malaysia
PageRank Bandits for Link Prediction	USA	China
(FL)2: Overcoming Few Labels in Federated Semi-Supervised Learning	South Korea	South Korea
Revisiting Ensembling in One-Shot Federated Learning	India	Switzerland
Personalized Federated Learning with Mixture of Models for Adaptive Prediction and Model Fine-Tuning	USA	USA

14. **Bandits (66-70)**

Poster	**Country of last Degree**	**Country of current employment**
A Simple and Adaptive Learning Rate for FTRL in Online Learning with Minimax Regret of $\Theta(T^{2/3})$ and its Application to Best-of-Both-Worlds	Japan	Japan
Fine-Grained Dynamic Framework for Bias-Variance Joint Optimization on Data Missing Not at Random	China	USA
Logarithmic Smoothing for Pessimistic Off-Policy Evaluation, Selection and Learning	France	France
Optimal Multi-Fidelity Best-Arm Identification	France	France
Plant-and-Steal: Truthful Fair Allocations via Predictions	Israel	Israel

15. **Causal (71-75)**

Poster	**Country of last Degree**	**Country of current employment**
Tangent Space Causal Inference: Leveraging Vector Fields for Causal Discovery in Dynamical Systems	USA	Scotland
Interventional Causal Discovery in a Mixture of DAGs	USA	USA
Disentangled Representation Learning in Non-Markovian Causal Systems	USA	USA
Conditional Generative Models are Sufficient to Sample from Any Causal Effect Estimand	USA	USA
When to Act and When to Ask: Policy Learning With Deferral Under Hidden Confounding	Israel	Germany

16. **Biology/Chemistry (76-80)**

Poster	**Country of last Degree**	**Country of current employment**
GFlowNet Assisted Biological Sequence Editing	USA	USA
AdaNovo: Towards Robust \emph{De Novo} Peptide Sequencing in Proteomics against Data Biases	China	China
MassSpecGym: A benchmark for the discovery and identification of molecules	Czech Republic	Czech Republic
Unified Guidance for Geometry-Conditioned Molecular Generation	Germany	Germany
MOTIVE: A Drug-Target Interaction Graph For Inductive Link Prediction	USA	USA

17. **Time Series (81-85)**

Poster	**Country of last Degree**	**Country of current employment**
ProbTS: Benchmarking Point and Distributional Forecasting across Diverse Prediction Horizons	China	China
Off to new Shores: A Dataset & Benchmark for (near-)coastal Flood Inundation Forecasting	France	Germany

Tiny Time Mixers (TTMs): Fast Pre-trained Models for Enhanced Zero/Few-Shot Forecasting of Multivariate Time Series	USA	India
SOI: Scaling Down Computational Complexity by Estimating Partial States of the Model	Poland	Poland
Con4m: Context-aware Consistency Learning Framework for Segmented Time Series Classification	China	China

18. General (86-100)

Poster	Country of last Degree	Country of current employment
Heavy-Tailed Class Imbalance and Why Adam Outperforms Gradient Descent on Language Models	Canada	Canada
Benchmarking the Attribution Quality of Vision Models	Germany	Germany
On the Computational Landscape of Replicable Learning	Greece	USA
MILP-StuDio: MILP Instance Generation via Block Structure Decomposition	China	China
Statistical Multicriteria Benchmarking via the GSD-Front	Germany	Germany
Who's Gaming the System? A Causally-Motivated Approach for Detecting Strategic Adaptation	USA	USA
GTSinger: A Global Multi-Technique Singing Corpus with Realistic Music Scores for All Singing Tasks	China	China
MambaAD: Exploring State Space Models for Multi-class Unsupervised Anomaly Detection	China	China
In Pursuit of Causal Label Correlations for Multi-label Image Recognition	China	China
FIDE: Frequency-Inflated Conditional Diffusion Model for Extreme-Aware Time Series Generation	USA	USA
Non-parametric classification via expand-and-sparsify representation	India	USA

Policy Aggregation	Iran	Canada
Exponential Quantum Communication Advantage in Distributed Inference and Learning	Israel	Israel
Scale Equivariant Graph Metanetworks	Greece	Greece
WeiPer: OOD Detection using Weight Perturbations of Class Projections	Germany	Germany

8. Abstracts

Deutsch

Diese Masterarbeit untersucht, ob der CHIPS and Science Act (2022) die globale Mobilität von KI-Spitzenforschenden beeinflusst hat und sich somit das Verhältnis von Talenten zwischen Ausbildungs- und Beschäftigungsländern verändert hat. Mit Grundlage des Global AI Talent Trackers von MacroPolo und anhand eines selbst erhobenen Datensatz von 100 NeurIPS-Publikationen bietet die Studie eine vergleichende Analyse der Mobilitätstrends vor und nach Einführung des CHIPS Acts. Die Ergebnisse zeigen deutliche Parallelen zu MacroPolo's Webtrackers, darunter eine starke Position der USA im globalen KI-Sektor vermutet aufgrund erhöhter Investitionen. Asien nimmt rapide an Bedeutung zu mit Hauptaugenmerk auf China und Taiwan, wobei auch Süd vor allem in der Ausbildung und Erhaltung von KI-Talenten Stärken aufweist. Bezüglich Verbleibes der Expert:innen im Ausbildungsland sind China, EU, USA, Süd-Korea und der Nahe Osten Vorreiter. Im Sinne der Anziehungskraft als Arbeitsmarkt für Talente sind USA, Canada, China und UK die Hauptziele. Das Miteinbeziehen des Prozentsatzes der im Ausbildungsland Verbleibenden Expert:innen hat jedoch einen großen Einfluss auf die Verteilung der Talente, dementsprechend haben auch regionale Mobilität innerhalt desselben Landes Auswirkungen auf die Mobilitätsstatistiken. Die Arbeit ordnet diese Entwicklungen in einen geopolitischen Rahmen ein, geprägt von globalem Wettbewerb, Ressourcenverteilung und regulatorischen Bedingungen. Durch die Gegenüberstellung von quantitativen Mobilitätsindikatoren und qualitativer Politikanalyse wird gezeigt, dass der CHIPS Act als grober Einflussfaktor für die Mobilität der Talente gewertet werden kann, wobei weitere geographische, politische und gesellschaftliche Faktoren ebenso ausschlaggebend sind. Die Arbeit kommt zu dem Schluss, dass die Mobilität von KI-Talenten zunehmend von nationalen gesellschaftspolitischen Entscheidungen geprägt sein wird.

English

This master's thesis examines whether the CHIPS and Science Act (2022) has influenced the global mobility of top AI researchers and, as a result, whether the balance of talent between countries of education and employment has shifted. Based on MacroPolo's Global AI Talent Tracker and using a self-collected dataset of 100 NeurIPS publications, the study offers a comparative analysis of mobility trends before and after the introduction of the CHIPS Act. The results show clear parallels to MacroPolo's tracker, including a strong position for the USA in the global AI sector, likely due to increased investment. Asia is rapidly gaining importance, with a focus on China and Taiwan, while South Korea also demonstrates strengths, particularly in the training and retention of AI talent. In terms of experts remaining in their country of education, China, the EU, the USA, South Korea, and the Middle East are leading the way. In terms of attractiveness as a labor market for AI talents, the USA, Canada, China, and the UK are the primary destinations. However, including in the percentage of experts who remain in the country where they were trained has a significant impact on the distribution of talent. Hence, regional mobility within the same country also affects mobility statistics. This study places these developments within a geopolitical framework shaped by global competition, resource distribution, and regulatory conditions. By comparing quantitative mobility indicators with qualitative policy analysis, it shows that the CHIPS Act can be considered an influencing factor on talent mobility, although other geographical, political, and societal factors are equally decisive. The paper concludes that the mobility of AI talent will increasingly be shaped by national socio-political decisions.