Research Flash: Artificial Intelligence Knowledge Supply Chain
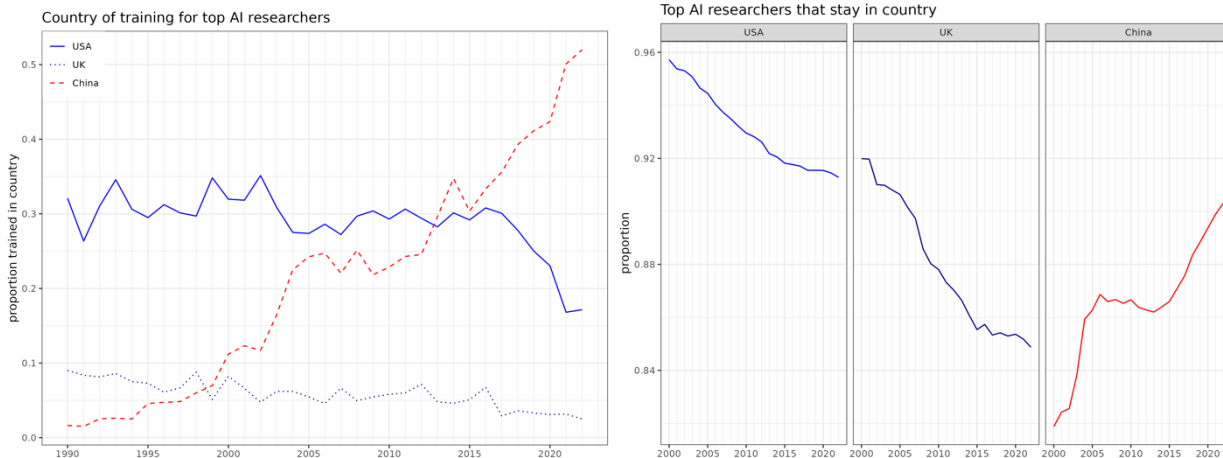
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Summary

NSDPI researchers constructed a novel methodology to study research competition in artificial intelligence (AI). They found that the United States and its allies severely lag China. The report analyzed top AI researchers' training, publications, and affiliations to measure the country-level status of AI research. Key findings include:

- The supply of top AI researchers in the US is in decline
- The US is training proportionally fewer researchers in-country
- Fewer researchers are staying in the United States after their training
- US partners and allies lag in researcher training, retention, and productivity

By contrast, China has experienced a sharp increase the number of researchers trained in-country and the retention of those researchers. Of the other top 36 countries for AI research, no other than the PRC have seen an increase in in-country training.

The US is training and retaining fewer top AI researchers. Until 2016, about 30% of top AI researchers were trained in the US. Since 2020, that number has dropped below 20%. Researcher retention has steadily declined since 2009, indicating an emigration of AI research talent from the US.

The situation of most US allies is materially worse. Australia, Canada, France, Germany, and the UK all train a very small proportion of top AI researchers, and this figure is declining. Of the top 36 countries for AI research, only two US allies (Saudi Arabia, South Korea) are not experiencing net emigration of AI researchers.

Contribution

Measuring the state of scientific competition is a longstanding challenge. NSDPI researchers developed a method to study AI research production at the country level using bibliometric data. The report takes a supply chain approach, mapping and tracing AI research output through research affiliation and publication venue. To reduce noise from less rigorous or lower-impact publications, the report assesses only researchers who have published in one of the fifteen top venues for AI research. This report represents an initial effort; researchers or Institute leadership can be made available to discuss further or address follow-on questions.