September 24, 2025

Submission to the NBER i3 Technical Working Group 2025 Annual Meeting

Dear Organizers,

We are writing to apply for a presentation at the 2025 I3 Technical Working Group meeting, drawing on two closely related working papers:

1. Funding the U.S. Scientific Training Ecosystem: New Data, Methods, and Evidence
2. A Quarter of U.S.-Trained Scientists Eventually Leave: Is the U.S. Giving Away Its Edge?

The first paper introduces a new dataset of nearly 1.2 million STEM PhD dissertations from 1950 to 2022 and develops high-resolution measures of funding sources and graduates' association with critical technology areas. It documents who funds scientific training, where critical-technology scientists are trained, and the extent to which public investment drives PhD production. The second paper (currently under embargo by a journal) extends this data infrastructure by linking graduates to their publications, mobility patterns, and downstream technological impact, providing the first near-population view of long-term emigration rates and their implications for U.S. science and innovation.

A distinctive contribution of this work is methodological. We apply recent advances in large language models and machine learning to extract structured data from unstructured dissertation texts, to classify research into government-defined technology areas, and to link graduates across bibliometric and patent datasets. These techniques make possible near-population measurement of training, funding, and mobility across decades, and yield curated datasets that will eventually be openly shared to support the broader research community.

By presenting the two projects together, our goal is to highlight the shared methodological advances and their applicability across many research domains, rather than to emphasize separate findings.

We thank you for your time and consideration.

Sincerely,
Dror Shvadron
Rotman School of Management, University of Toronto

With Hansen Zhang (Duke University), Lee Fleming (UC Berkeley), and Daniel Gross (Duke University and NBER)