Automation in Recruitment: Impacts of AI Screening and Interviewing on Job Match Quality

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AI has the potential to revolutionize existing workflows, yet despite extensive documentation of its capabilities, far less is known about how these tools are used in practice and what effects they have when paired with human decision-makers. Since most AI systems operate alongside humans, understanding this interaction is critical for evaluating their real-world impact, shaping labor-market outcomes, and guiding responsible adoption. As a third-year Ph.D. candidate, my research investigates how AI-powered hiring tools, including resume screening and AI interviewers, influence labor-market matches, human–AI collaboration, and organizational outcomes through large-scale field experiments and a novel dataset documenting Fortune 500 firms' adoption of AI-powered resume screening tools. Complementing this work, I joined the Autonomous Systems Policy Institute to contribute to interdisciplinary research on AI agency, related harms, and optimal governance, and I engage with the forefront of AI and digital economics through the Machine Learning in Economics Summer Institute at the University of Chicago and the ETH Zurich weekly seminars on AI and economics, incorporating cutting-edge methods and perspectives into my projects. Attending the NBER Digital Economics and AI Tutorial will allow me to connect this work to critical questions in digital markets and algorithmic decision-making, learn directly from leading researchers in this area, and strengthen the empirical and policy relevance of my research on AI adoption.

My central project investigates the adoption of AI-powered resume screening tools by large firms. As of 2023, an estimated 99% of Fortune 500 companies use some form of automated hiring technology, with resume screening among the most common applications (Burrows 2023). These tools range from simple keyword searches to advanced machine-learning (ML) algorithms that score and rank applicants for hiring managers. While AI adoption reduces vacancy posting and screening costs, potentially allowing firms to post

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more openings and search longer for ideal applicants, consistent with search-and-matching models (Mortensen and Pissarides 1994; Pissarides 2000), it also generates algorithmic signals that interact with managerial decision-making. These signals may improve match quality by providing more informative assessments, but because systems often train on historical hiring data, they may also reinforce existing biases, potentially producing worse matches (Spence 1973; Prendergast 1999). Together, these channels suggest AI screening can affect both the quantity and quality of labor market matches, highlighting the need for causal evidence on real-world effects.

To study these effects, I constructed a novel dataset identifying firm adoption of AI-powered resume screening tools. Using browser Developer Tools, I inspected hiring portal HTML, scripts, and network activity to detect ML-based systems via domain calls, APIs, and metadata references. I cross-validated these findings with company documentation (Form 8-K), public disclosures, developer websites, and patents to create the first dataset tracking adoption of AI-powered screening across firms. I combine this data with job postings and restricted employer–employee matched microdata (LEHD) documenting employee flows and wages, providing, to my knowledge, the first large-scale evidence on the real-world impact of AI screening adoption on hiring outcomes.

Building on these questions in later stages of hiring, I recently joined Brian Jabarian (University of Chicago) and coauthors in the Artificial Process Outsourcing (APO) research program, a five-year collaboration with PSG Global Solutions, a Teleperformance subsidiary. This program embeds theory-driven natural field experiments directly into live recruitment operations, linking randomized treatments to real-world outcomes across millions of applicants. The flagship experiment randomized over 70,000 applicants between AI and human interviewers, measuring effects on offer rates, retention, and applicant preferences, with AI interviewers conducting the interview that is later reviewed by human recruiters that make the final hiring decision. My work contributes to the next stage of this agenda by analyzing how increasingly sophisticated AI interviewers shape hiring processes, applicant experiences, and firm-level outcomes in global recruitment operations. This collaboration offers unprecedented access to large-scale, high-frequency operational data from live RPO/BPO environments, enabling causal inference at industrial scale and allowing us to study both the impact of AI adoption in real-world hiring and the dynamics of human-AI collaboration.

Beyond labor-market applications, I contribute to interdisciplinary research on AI risks and governance through the Autonomous Systems Policy Institute (ASPI) at Syracuse University. ASPI brings together experts from diverse disciplines to analyze the socio-technical and ethical dimensions of AI, autonomous systems, and other emerging technologies. In 2024, ASPI became an inaugural member of the U.S. AI Safety Institute Consortium created by

NIST under the Biden administration in order to support the development and deployment of safe and trustworthy artificial intelligence. I was invited to join a small group of faculty and graduate student researchers to contribute to this consortium's work on identifying and mitigating AI risks. Specifically, our current work analyzes how AI agency manifests in real-world systems and how these agentic behaviors relate to actual harms, empirically grounding theoretical discussions while providing insights relevant for the governance of AI agents. To do so, we first developed a taxonomy that operationalized definitions of AI agency from the literature and applied it to MIT's AI Incident Database and documented the prevalence of AI agency by system and across time, demonstrating that, although agentic behavior is often associated with newer systems such as generative AI, it has existed in earlier systems such as recommender algorithms. Finally, we utilize the CSET taxonomy of harms to document which types of harms correlate with different qualities of agency and to distinguish qualities of agency that directly generate harm from those that simply mediate human agency. This work provides one of the first large-scale empirical mappings of AI agency to documented harms, allowing researchers to analyze incidents through the lens of agency and informing the design of future incident reporting systems.

Attending the tutorial will allow me to situate my research on AI adoption and AI agency within the broader landscape of digital economics, from platform markets to algorithmic decision-making. With access to unique operational data from live recruitment processes and novel data documenting the adoption of AI screening tools, I aim to contribute concrete empirical insights to discussions on market dynamics, labor outcomes, and optimal regulation. The tutorial will also help me refine methods for measuring algorithmic influence and human-AI collaboration, strengthening the causal and policy relevance of my work. Engaging with this community will provide feedback and inspiration for my ongoing projects, which aim to illuminate how AI adoption shapes labor markets, firm behavior, and the risks and opportunities of emergent technologies in the real world.