

EDUCATION

University of Toronto

HBSc in Computer Science and Economics, GPA: 3.97/4.00

Toronto, ON, Canada

Sep 2023–Expected Jun 2027

PREPRINTS AND MANUSCRIPTS

- Tadd Mao*, **Kirill Utyashev***, and Peter Marbach. *Agent Interest and Capability: When Does Decentralized Value Learning Scale?* Under review at AAMAS 2027. (* Equal contribution.)

RESEARCH EXPERIENCE

Robot Vision and Learning Lab, University of Toronto

Undergraduate Researcher; Advisor: Prof. Florian Shkurti

Toronto, ON

May 2026–Present

Policy-Aware Curricula from Sparse-View Robotics Data

- Evaluated $\pi_{0.5}$, GR00T, and DreamZero fine-tuned on data collected in our lab across four manipulation tasks. Tested robustness to camera viewpoint perturbations, relighting, and visual distractors, identifying conditions under which task success fell to near zero.
- Co-developed infrastructure for data collection, policy training, deployment, and evaluation; implemented components including real-time action chunking and a live monitoring dashboard. The infrastructure supported over 30 hours of robot data collection and was reused across two other lab projects.
- Contributed over 11 hours of annotated robot demonstrations and policy evaluation rollouts to Oopsie Data, a multi-lab dataset of robot manipulation failures.

Force-Aware Manipulation

- Adapted FACTR teleoperation for an angled bimanual robot setup, designing lightweight components in CAD to match the robot's kinematics. Incorporated user feedback to refine the gripper design and tune force-feedback and gravity-compensation gains.
- Built parallelizable simulation infrastructure in Isaac Lab using the same Flexiv low-level control implementation as the physical robot to limit controller mismatch during sim-to-real transfer.
- Proposed investigating whether force feedback should inform the main manipulation policy or a separate fast reactive controller, and developed tasks requiring force information. Presented the project at the Undergraduate Summer Research Showcase (2026), receiving an Honorable Mention.

Systems & Networks Group, University of Toronto

Undergraduate Researcher; Advisor: Prof. Peter Marbach

Toronto, ON

May 2025–Present

Scaling Decentralized Value Learning

[Preprint]

- Led the project from research-question formulation to manuscript submission, investigating how agent specialization affects the scalability of decentralized value learning. Wrote the manuscript with advisor and co-author feedback.
- Designed and built a multi-agent environment with independently configurable task capabilities and reward couplings, implemented learning algorithms and baselines, and developed cluster infrastructure for controlled scaling experiments.
- Found that decentralized learning retained approximately 85% of its performance when scaling from 11 to 41 agents with fixed specialization and network width, achieving nearly twice the centralized baseline's performance at 41 agents.

LLM Hiring Audits

[Preprint] [Code]

- Built an OCR and LLM-based pipeline to extract historical job postings from 2,400+ newspaper scans and generate 50,000+ synthetic resumes for controlled experiments on demographic bias in LLM hiring decisions.
- Automated 140,000+ hiring decision simulations across five LLMs and ran additional robustness experiments to study the trade-off between accuracy and harmlessness.
- Led the extension of the research codebase into LLM AuditKit, an open-source package for configurable hiring experiments and demographic bias analysis across models, with support from the NBER-facilitated i3 Fellowship.

AWARDS

- Department of Computer Science Award, University of Toronto – C\$12,000 2026
- The Banker's Scholarship in Economics, University of Toronto 2026
- University of Toronto Excellence Award – C\$8,000 2025
- Dean's List, University of Toronto 2024–2026
- University of Toronto International Scholar Award – C\$100,000 over four years 2023

TEACHING

- **Tutorial Teaching Assistant** at University of Toronto Spring 2026
Principles of Macroeconomics (ECO102)
- **Section Leader** at Code in Place (Stanford University) Spring 2025
Programming Methodology (CS106A)

PROJECTS

- **Context Graph**, ML Engineering Capstone [Code] Spring 2026
Built repository memory for coding agents by connecting code structure with commits, issues, and pull requests. Presented at the DCS Software Engineering Showcase.
- **Generative AI Exposure and Work Hours**, Applied Econometrics [Report] [Slides] Fall 2025
Analyzed American Time Use Survey data using fixed-effects regressions, finding opposite associations between AI exposure and work hours across alternative measures, highlighting sensitivity to exposure measurement.
- **AI Productivity Tracker**, with Prof. Ajay Agrawal [X] Summer 2025
Synthesized research papers and industry reports on AI-related productivity changes into public-facing summaries, generating 10,000+ views across platforms.
- **EduConquest**, GenAI Genesis [Demo] Mar 2025
Led a team of four to build an educational roguelike with AI-generated quiz combat; won Best Education AI Hack among 50+ teams.
- **Syllabus Parser**, UofTHacks 12 [Demo] Jan 2025
Built an AI app that converts syllabi into personalized study schedules and reminders; won the Ig Nobel-inspired prize.

LEADERSHIP AND SERVICE

- Mentor (Undergraduate Student Research Program), Computer Science Student Union 2025
- Orientation Marshal, University of St. Michael's College – University of Toronto 2025
- First-Year Peer Mentor, University of St. Michael's College – University of Toronto 2024–2025