Georgii Mogilnikov

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Motivated Mechanical Engineering undergraduate with a strong foundation in project management, coding, and leadership. Recognized for problem-solving ability, adaptability, and teamwork in both academic and research settings. Driven to apply technical expertise across engineering and ML domains while pursuing professional development.

Education

University of Toronto — B.A.Sc in Mechanical Engineering; minor in Engineering Business *2024 - Present*

Future Leaders and Engineering International Scholarship, TrackOne Engineering Ambassador, Student Contributor – UofT Communications & Outreach, Club Member - Startup Ecosystem Canada (SEC)

Work & Project Experience

GEARS Academic Mentor — Uoft Faculty of Applied Science and Engineering September 2025 – Present

Work & Study - Part-time

- Guest speaker for the First-Year Engineering Seminar (200+ students), delivering lectures on effective problem-solving, conceptual understanding, and problem-space analysis.
- Facilitating weekly group sessions (avg. 15 students), guiding students through assessment preparation, and resolving knowledge gaps; consistently achieved over 90% positive feedback in surveys.
- Contribute to the development of the GEARS mentorship program, collaborating to expand outreach across students; obtained Teaching Assistants' Training Program and IAR certificate.

Machine Learning Researcher — Algoverse AI research program May 2025 – September 2025

Remote

- Researched controllability of genomic language models (GLMs) for dual-use risk mitigation; co-authored paper on toxicity steering using Sparse Autoencoders (SAEs) and task vector arithmetic.
- Processed and analyzed 250k+ DNA sequences across genomic datasets; built pipelines for tokenization, embedding extraction, and evaluation.
- Trained SAE models achieving $> 85\%$ accuracy in identifying toxicity-linked features.
- Collaborated with a research team, while engaging with industry researchers and mentors; contributed to reproducible, open-source code pipelines.

Team Leader — Engineering Design Project, University of Toronto January 2025 – April 2025

In-Person

- Led a multidisciplinary team of 5 to develop an innovative solution for neurosurgery, reducing post-craniotomy epidural hematomas, addressing a complication with up to 15% mortality.
- Conducted research across 50+ clinical and engineering sources, synthesizing findings into professional specification documents.
- Prototyped and proposed a bioadhesive dura mesh with Adherus Dural Sealant® which saves 15+ minutes of operating room time per procedure while ensuring safety and biocompatibility.
- Coordinated weekly client meetings and presented final deliverables to faculty and medical professionals.

Skills

Programming & Data Science: Python (NumPy, pandas, PyTorch), C++, Java, MATLAB, Git, LaTeX

Engineering: SolidWorks, 3D printing, AutoCAD, Arduino/Electronics, Engineering Specifications, Technical Drawing, Design for Manufacturing (DFM), Machining

Project & Research: Project Management, Systems Engineering, Conceptual Design, Morphological Charts, Weighted Decision Matrices, Microsoft Project, Technical Writing, Stakeholder Communication

Interests: Basketball, Rock Climbing, Outdoor Exploration, Travelling, Classical Music