Pavlos Constas-Malevanets

First Year Undergraduate Student in Engineering Science at the University of Toronto
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Education

BASc in Engineering Science, University of Toronto, Toronto, CA
September 2024 -

- **3.9/4.0 GPA**
- **Extracurricular Activities:** UofT Rowing Club, Undergraduate Research, UTEK 2025 Junior Design Finalist

Research

Toronto Computational Imaging Group, University of Toronto, Toronto, CA
September 2024 -

- Formulating novel applications for ultra-wideband imaging techniques.
- Designed sinusoidal flickering for LEDs using Raspberry Pi Pico implementing DMA using high frequency PWM, and created push-pull driver circuit to drive these LED's.

Reinforcement Learning Summer Research Group, University of Toronto, Toronto, CA
July 2023 - December 2023

- Worked under Professor Michael Guerzhoy on "Toward A Reinforcement-Learning-Based System for Adjusting Medication to Minimize Speech Disfluency".
- Led the reinforcement learning team and co-wrote the reinforcement learning environment and patient simulation.
- Assisted in data analysis and contributed to paper writing
- Accepted to the Machine Learning for Cognitive and Mental Health (ML4CMH) workshop at AAAI-24.

Work Experience

Assistant Analyst, Research and Developer, Consultant, Advanced Mineral Technological Laboratory, London, Ontario, CA
September 2022 - June 2024

- Created software for mineral analysis using CNN, data processing, and computer vision algorithms.
- Designed and built a peristaltic pump robot for sample polishing.
- Gained laboratory experience using LECO Carbon-Sulfur assays, electron microscopy, and mass spectrometry.
- Fixed a longstanding ToF-SIMS mass spectrometer system failure, and implemented backup and repair infrastructure and systems in event of further failure.
- Devised a method to calibrate the colour profiles of motorized microscopes to improve uniformity and intermicroscope similarity for sample analysis.

Volunteer Experience

Coordinator / Volunteer, Chess In The Library - London Public Library, London, Ontario, CA
October 2022 - June 2024

- Organized a city-wide chess tournament for over 100 children, providing many with their first tournament experience.
- Instructed individuals ranging in age from 4-80 in the game of chess.
- Collaborated with other coordinators and library staff to establish a program across three locations, benefiting over 100 children.

Awards and Distinctions

Online Physics Olympiad (OPhO) 2023 Top 50 (2%, international) July, 2023
Canadian Geographic Challenge National Champion May, 2023
Top 3% in Avogadro Chemistry Contest (international) May, 2023

Technical Expertise

- Programming: Python, C/C++, Java, Bash, Rust, R, MATLAB
- Technologies: Blender, Linux/Unix Administration, nginx, Blockchain, LaTeX, Altium, CAD, Arduino, Raspberry Pi, Git
- Scientific Tools: Mass spectrometry, Electron microscopy, Molecular dynamics, Crystallographic software, Tensorflow, Custom ML Environments, Soldering, PCB Design, Microelectronics
- **The "Rowelometer"**, a project I devised to create a more affordable rowing tachyometer and stroke-rate meter. Uses microelectronics, home-built circuit including PCB design, and an implementation of Kalman filtering. See more at https://www.pavlosconstas.com/public/Rowelometer.pdf
- Languages: English (native), Greek (native), German (intermediate, B2), French (intermediate, B1-2)