Boris Kafidov

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EDUCATION

University of Toronto **Sep. 2024 – Jun. 2028**

Major: HBSc Computer Science and Mathematics (Double Major) (Focus in Artificial Intelligence) *Toronto, ON*

- 3.9 GPA in CS Courses

SKILLS, TECHNOLOGIES & LANGUAGES

- **Skills:** Data Structures & Algorithms; Debugging; Object-Oriented Programming; CI/CD; Data Analysis; API Integration; Machine Learning; Code Review; Software Testing
- **Technologies:** Python; Java; C; JavaScript; HTML; CSS; RESTful APIs; PyTorch; HuggingFace; Tkinter; PyQt / PySide; NumPy; Pandas; Matplotlib; Git and GitHub; Bash; GCP; AWS
- **Languages:** English - Native; Russian - Native; German - Proficient

WORK EXPERIENCE

Wheeler Lab - University of Toronto **Sep. 2025 – Present**

Instrumentation Software Developer *Toronto, Ontario*

- Building Python + PySide6 GUIs for DISCO to automate data acquisition, device control, and concurrent microscope operations on Linux
- Integrating Thorlabs camera SDK in a Python conda environment to enable automated imaging and configuration switching
- Prototyping ML-assisted image analysis to support real-time feedback and experiment automation
- Work Study, Research Experience Stream at the Wheeler Lab (Prof. Aaron Wheeler); report to Assistant Professor Michael Dryden

University of Toronto Quantum Computing Club **Sep. 2025 – Present**

Web Developer / Club Executive *Toronto, Ontario*

- Working on a team of 2 web developers to build a new website for 650+ club members
- Planned the site architecture and content layout, defining structure, style, and navigation while coordinating task delegation and development timelines to ensure consistent progress and quality

Helmholtz Munich **Jun. 2022 – Jul. 2022**

Research Intern *Munich, Germany*

- Operated lab instruments including the pco.edge 4.2 camera and pco.camware software in research on optoacoustic imaging and photothermal diagnostics
- Gained hands-on experience working in a wet lab alongside technicians, learning protocols and equipment used in biomedical optics research
- Contributed to data acquisition and sample preparation for advanced imaging experiments involving spectroscopy and laser-based systems

PROJECTS

APA Site Choice Transformer (Toronto Bioinformatics Hackathon 2025 2nd Place Winner) **September 2025**

- Co-led a team of 5 undergraduates to 2nd place out of 23 projects (116 contestants), earning the $500 award in a grad-heavy cohort
- Single-handedly trained and evaluated a transformer model in PyTorch and Hugging Face on A100 GPUs, building the end-to-end pipeline and custom data loaders for >800k labeled sequence samples from PolyASite 2.0, PolyA_DB, and GENCODE
- Achieved held-out performance of Accuracy 0.86, AUROC 0.93, AUPRC 0.94, and F1 0.86 across validation chromosomes, demonstrating generalization with sequence-only input
- Provisioned and managed cloud GPU resources on GCP (A100), experimented with AWS for infrastructure, maintained the ML stack with Git LFS for checkpoints, diagnosed CUDA/Triton attention issues, and stabilized training and inference to meet final deadlines

LeetTutor – AI Code-Review Micro-App **July 2025**

- Designed and built a full-stack web tool that analyzes 1 000+ LeetCode problems and returns targeted code feedback in < 2 s round-trip
- Integrated Groq's qwen-32B model through a serverless Cloudflare Function, securely handling API keys while keeping the client bundle under 30 KB
- Delivered a responsive plain-JS interface with live status updates and output sanitization; achieved 100 / 100 Lighthouse performance & best-practice scores
- Automated local emulation and cloud deploys with Wrangler + GitHub Actions, releasing every commit to a live demo in < 1 min