Kevin Chen

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Education

BASc in Engineering Science, Machine Intelligence Major, Bioengineering Minor   *Toronto, ON*

University of Toronto   *Sept 2021 - May 2026 (Expected)*

- **GPA:** 3.94/4
- **Thesis:** *BERT-like Model for Human Gut Microbiome Representation Learning*
- **Supervisors:** Prof. Rahul G. Krishnan, Prof. Michael Brudno

Research Experience

Research Intern   *Toronto, ON, Canada*

Vector Institute   *May 2025 - Present*

- **Skills:** Python, Pytorch, Scikit-Learn, Wandb, NumPy, Pandas, anndata, Git
- **Project**: *BERT-like Model for Human Gut Microbiome Representation Learning*
- **Supervisors:** Prof. Rahul G. Krishnan and Prof. Michael Brudno
- Designed and implemented a BERT-like Transformer to learn representations of human gut microbiome data, collected from both 16S rRNA and shotgun metagenomic sequencing.
- Conducted literature reviews on machine learning for biology, including transcriptomic foundation models.
- Designed and ran machine learning experiments (ablation studies, hyperparameter searches, etc.) intending to contribute to a peer-reviewed publication.
- Presented preliminary work at undergraduate summer research day.

Research Intern   *Edmonton, AB, Canada*

University of Alberta, Department of Mathematical and Statistical Sciences   *May 2023 - Aug 2023*

- **Skills:** Python, Pytorch, SQL, Bash command line
- **Project:** *Intelligent automated exam generation using Neural Networks on Distributions.*
- **Supervisors:** Prof. Michael Kouritzin and Prof. Beatrice-Helen Vritsiou
- Explored neural networks operating on distributions for intelligent exam generation.
- Processed and analyzed school exam data to ensure data quality and readiness for training.

Teaching and Professional Experience

Teaching Assistant   *Toronto, ON, Canada*

University of Toronto   *Sep 2025 – Present*
Sep 2023 – Dec 2023

- **Skills:** Python, MATLAB, Technical Communication
- Teaching Assistant for two undergraduate courses: MAT188 Linear Algebra and ESC180 Introduction to Computer Programming.
- Leveraged strong mathematical and technical knowledge to tutor and direct first-year Engineering students, leading to *strong and consistent attendance* for my sections.
- Hosted individual office hours and gave written feedback to students on assessments.

Software Engineering Intern, Windows Core Graphics Kernel Driver   *Markham, ON, Canada*

AMD   *May 2024 - Apr 2025*

- **Skills:** C++, CMake, Jira, Github, Typescript, PostgreSQL, Docker
- Worked with **large C++ codebase** to reduce ticket count and hangs for pre-release drivers and worked with cross-functional teams to deliver a stable, performant driver for RX 9000 GPUs.
- Built GitHub-integrated tooling for experiment/project tracking and optimized backend systems with multithreading **(4× speedup)**.
- Developed systematic debugging, profiling, and root-cause analysis skills that translate to research work.

Industrial Controls Intern

Capital Power

- **Skills:** SQL, Microsoft VBA, Project Management
- Worked with power plant databases. Created system of plant archival and data storage using internal scripts that reduced required storage by **30%**, and reduced licensing costs by **hundreds of dollars**.
- Designed organizational procedures and documentation for power plant downtime interface, leading to *concrete procedural changes* for all power plant downtimes.

Technical Skills

Machine Learning	PyTorch, Scikit-learn, Wandb, NumPy, Pandas, anndata
Languages	Python, C, C++, MATLAB, TypeScript
Tools	Slurm, Git, SQL, Linux/Bash, Powershell, Docker, CMake, LaTeX

Awards

$15,000	**Vector Research Internship,** Research Grant. May 2025	*University of Toronto*
$7,400	**NSERC USRA**, Undergraduate Summer Research Award. May 2023	*University of Alberta*
$1,200	**Paulin Memorial Scholarship**, Awarded for High Standing in First Year Engineering. Sep 2022	*University of Toronto*
$250	**ECE Top Student Award**, Awarded for Top-3 Academic Average in First Year Electrical Engineering. Sep 2022 (Declined due to transferring departments)	*University of Toronto*
$5,000	**Faculty of Engineering Scholarship**, U of T Engineering Entrance Scholarship. Sep 2021	*University of Toronto*