

EDUCATION

Bachelor of Applied Science in Engineering Science, University of Toronto 2021 - 2026 (expected)

SKILLS

Languages	Python, C/C++, CUDA, Shell Scripting, SQL, Java
Developer Tools	Pytorch, Tensorflow, JAX, Jupyter, OpenCV, NLTK, Keras
Technologies/Frameworks	Linux, Docker, MySQL, SLURM, GoLang, Angular, React, Flask,

EXPERIENCE

Bachelor Thesis Jul 2025 - Present
Goldenberg Lab, Vector Institute Toronto, CA

- Conducted research on generative models for predicting neurological conditions based on wearable signals

Research Director Jul 2025 - Present
UTMIST, University of Toronto (Canada's largest student-lead organization for AI/ML) Toronto, CA

- Oversaw various student-led research projects, recruited talented team leads to build impactful ML projects
- Helped connect students with research labs and potential research advisors to guide research projects

Research Intern—Robotics May 2025 - Present
Auton Lab, Carnegie Mellon University, PI: Professor Artur Dubrawski Pittsburgh, US

- Worked on heartrate detection @ CMU's [team Chiron](#) for the DARPA Triage Challenge
- Developed PRISM—Projection-based Robust Interpretable Signal Mixing—for unsupervised rppg. Outperforms existing SOTA methods such as POS, LGI, CHROM, while providing insightful uncertainty metrics

Research Intern—Computer Vision Jul 2024 - May 2025
Safe-AI Lab, Carnegie Mellon University, PI: Professor Ding Zhao Pittsburgh, US

- Built a novel scene reconstruction framework based on **3D Gaussian Splatting** and integrating **feature distillation** to enable **real-time rendering** and **segmentation** of dynamic surgical scenes; Leverages **foundation models** for semantic scene understanding.
- Benchmarked our framework against existing methodologies and achieved superior rendering results, **outperforming SOTA methods** like LGS, EndoGaussian, and EndoNerf across all reconstruction metrics including PSNR, SSIM, LPIPs, and RMS Loss.
- Benchmarked our framework against existing segmentation architectures and demonstrated segmentation performance **competitive with** that of SAM, SAM2, and MedSAM, achieving higher dice scores and IoU than SAM Vit-H, SAM2 Hiera-L, and MedSAM Vit-B

ML Engineer Intern May 2024 - Apr 2025
PocketHealth (Series B) Toronto, CA

- Built and finetuned lightweight SAM based segmentation models for text-promptable segmentation of organs in CT, X-Ray, MRI, and US scans. Resulted in **33 300 subscription purchases** over a course of 6 months, **generating \$1.7 million/year** in revenue.
- Built PocketHealth Explainer, an LLM explanation tool for simplifying patients' radiology reports. Achieves **user satisfaction rating of 98%** and makes users **18% more likely to purchase a subscription**.
- Finetuned **DistilBert models** for automated lung nodule detection and followup detection in radiology reports.

Research Intern—Computational Pathology May 2023 - Present
Multimedia Lab, University of Toronto, PI: Professor Konstantinos N. Plataniotis Toronto, CA

- Published extensive histological [dataset](#) of 20k annotated colon images for deep learning
- Built a [tissue annotation platform](#) to facilitate tissue labelling tasks for pathologists;
- Built a computer vision model based on VMamba to discover tissue biomarkers for colon polyps
- Benchmarked performances of SOTA **self-supervised** and **contrastive learning** models including **Masked Autoencoder** and **SimCLRv2** for representation learning on volumes of tissue images

Research Intern—Machine Learning May 2022 - Aug 2022
IC2 Lab, King Mongkut University of Technology (KMUTT), PI: Professor Jonathan H. Chan Bangkok, TH

- Developed deep learning pipeline with **Pytorch 3D U-Net** and MONAI framework that segments GI organs in CT scans to facilitate radiotherapy for cancer patients. Integrated **Explainable AI** techniques including **GradCAM** and **DeepLift** for salient feature visualization, improving model interpretability.

AWARDS

Faculty of Applied Science and Engineering Admission Scholarship of **\$5000**, Engineering Science Research Opportunities Program - Global (ESROP - Global) award of **\$7000**, NSERC Undergraduate Student Research Awards of **\$7500** x 2 (2022, 2024), Dean's Honours List student (x4)

PUBLICATIONS

* denotes equal contribution

- Gastro-Intestinal Tract Segmentation Using an Explainable 3D Unet**
Kai Li and Jonathan Chan
13th Joint Symposium on Computational Intelligence (JSCI13) 2023 / [\[arXiv\]](#)

- **Feature-EndoGaussian: Feature-Distilled Gaussian Splatting in Surgical Deformable Scene Reconstruction**
Kai Li*, Junhao Wang*, William Han, Ding Zhao
[\[arXiv\]](#)
- **ADPv2: A Hierarchical Histological Tissue Type-Annotated Dataset for Potential Biomarker Discovery of Colorectal Disease**
Zhiyuan Yang, **Kai Li**, Sophia Ghamoshi Ramandi, Patricia Brassard, Hakim Khellaf, Vincent Quoc-Huy Trinh, Jennifer Zhang, Lina Cheng, Corwyn Rowsell, Sonal Varma, Kostas Plataniotis, Mahdi S. Hosseini
Journal of Pathology Informatics / [\[arXiv\]](#)
- **Adaptive Color Mixing for Interpretable Remote Heart Rate Estimation**
Kai Li, Pushpak Agrawal, Cecilia Morales, Chi-En Teh, Artur Dubrawski
Medical Autonomous Care State of the Science (MAC-SOS) / **Journal of Critical Care**
- **Projection-based Robust Interpretable Signal Mixing for Remote Heart Rate Estimation**
Kai Li*, Cecilia Morales*, Chi-En Teh*, Pushpak Agrawal, Artur Dubrawski
NeurIPS Learning from Time Series for Health (TS4H) 2025 / Submitted to **ICRA 2026**