

Allison Tsz Kwan Lau

📍 Toronto || Hong Kong 🔗 <https://allison-lau.vercel.app/>
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Final-year BSc in Computer Science with a strong interest and experience in deep learning and large language models (LLMs), with relevant publications in top conferences. Interested about quantitative research and development roles, leveraging data-driven approaches to solve complex problems.

EDUCATION

University of Toronto, Canada

Sep 2025 – Jan 2027 (Expected)

M.S. in Computer Science

University of Toronto, Canada

Sep 2021 – Jun 2025 (Expected)

B.S. in Computer Science (*Specialist*), Physics (*Major*), Mathematics (*Minor*) *cGPA: 3.90/4.0*

Courses: Probabilistic Learning and Reasoning, Numerical Methods, Algorithm Design and Analysis, Neural Networks and Deep Learning, Probability with Computer Applications, Operating Systems, Computer Graphics, Image Understanding and Visual Computing

Awards: Dean's List (2021–2023), NSERC Undergraduate Student Research Award (2024–2025), Class of 3T0 and Associates Scholarship in Mathematics and Physics (2023–2024), The Chancellor's Scholarships (2022–2023), University of Toronto Scholar (2021–2022)

PUBLICATIONS

1. **Personalized Adaptation via In-Context Preference Learning**

Allison Lau, Younwoo Choi*, Vahid Balazadeh*, Keertana Chidambaram*, Vasilis Syrgkanis, Rahul Krishnan
NeurIPS 2024 Workshop on Adaptive Foundation Models

2. **Analyzing the effect of undermining on suture forces during simulated skin flap surgeries with a three-dimensional finite element method**

Wenzhangzhi Guo, Allison Lau, Joel C. Davies, Vito Forte, Eitan Grinspun, Lueder Alexander Kahrs
EG VCBM 2024

3. **Beyond CCDs: Characterization of sCMOS detectors for optical astronomy**

Aditya Khandelwal, Sarik Jeram, Ryan Dungee, Albert Lau, Allison Lau, Ethen Sun, Phil Van-Lane, Shaojie Chen, Aaron Tohuvavohu, Ting Li
SPIE Astronomical Telescopes + Instrumentation (AS24 Yokohama, Japan)

RESEARCH EXPERIENCE

Research Intern, Vector Institute & University of Toronto

May 2024 –

Supervisor: Rahul Krishnan

- Explored memorization mechanisms and fine-tuning methods in Large Language Models (LLMs) and conducted extensive literature review
- Implemented and trained machine learning models utilizing PyTorch on CUDA-enabled GPUs
- Developed history dependent direct preference optimization algorithm for training in-context online adaptation abilities in LLMs [1]

Research Intern, University of Toronto

Jan 2023 – Aug 2025

Secure Intelligent and Trustworthy Systems (SITH) Lab

May 2025 – Aug 2025

Supervisor: Gururaj Saileshwar

- * Researched side-channel attacks on Mixture of Experts (MoE) LLMs. Analyzed timing-based leakage in expert routing decisions

Toronto Computational Imaging Group

Sep 2024 – Dec 2024

Supervisor: David Lindell

- * Develop polarization and normalization maps for data retrieved from a coherent LiDAR prototype system

Medical Computer Vision and Robotics Lab

Jan 2024 – May 2024

Supervisor: Lueder Alexander Kahrs

- * Explored finite element method (FEM) in physics-based animation and various hyper-elastic models
- * Researched, planned experiments and developed automation for closure dynamics simulation of rhomboid surgical flaps with FEM for determining optimal undermining area of rhomboid skin flap [2]

Dunlap Institute

May 2023 – Aug 2023

Supervisor: Ting Li

- * Developed python scripts to automate the testing of CMOS detectors for space imaging
- * Conducted comprehensive analysis of critical detector characteristics such as linearity, dark current and salt and pepper noise [3]

Research Intern, Snyder Lab, Stanford University

Jan 2024 – Jan 2025

Supervisor: Michael Snyder

- Extended with 5 additional wearable devices and improved code efficiency for python package **Wearipedia**, specialized in data science, for extracting data in wearables, streamlined data extraction processes, generated synthetic data to support clinical research [code]
- Developed Wearipedia usage tutorial notebooks [code]
- Managed communication with potential collaborator wearable brands and data banks on data access and integration

Aerodynamics Lead, Blue Sky Solar Racing

May 2023 – May 2025

Faculty consultant: Amy Bilton

- Oversaw the R&D division and the technical division, organized onboarding material and led training for new members
- Communicated with faculty consultants, safety board members, and external testing facilities to arrange full scale wind tunnel testing of the aerobody successfully
- Designed and analyzed aerodynamic performances of original and enemy aerobodies with specification in canopy and flange designs with CAD using 3ds CATIA, Pointwise mesh generation and CFD simulation with textbook verifications
- Developed crosswind standardization and journal scripts in PyFluent for conceptual and detailed design of solar car for FSGP 2025 and WSC2027

SKILLS

Programming: Python [PyTorch, scikit-learn, JAX, NumPy, SciPy, Pandas], C/C++, MATLAB, R, HTML/CSS/JavaScript/TypeScript [React] [projects], L^AT_EX

Tools: Git/GitHub, Shell Scripting, VS Code, Slurm

Modelling & Graphics: Blender, 3ds CATIA, 3D Printing, Pointwise, ANSYS Fluent

Languages: English, Cantonese, Mandarin, French (basic), Japanese (basic)

COMMUNITY

Vice President, UofT Hong Kong Public Affairs & Social Services Society Sep 2022 – Apr 2023

- Led meetings and collaborated with community partners in club events

Vice President, UofT Cantonese Debate Society

Sep 2022 – Apr 2023

- Led meetings and organized team training and team building activities for a team of 10+ members