

ALLISON (TSZ KWAN) LAU

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EDUCATION

ETH Zurich MSc. in Computer Science Focus on Visual and Interactive Computing	Sep 25' – Aug 27' (Exp.) Zurich, Switzerland
University of Toronto BSc. in Computer Science (<i>Specialist</i>), Physics (<i>Major</i>), Mathematics (<i>Minor</i>) cGPA: 3.86/4.00 Relevant coursework: Probabilistic Learning and Reasoning, Numerical Methods, Algorithm Design and Analysis, Neural Networks and Deep Learning, Operating Systems	Sep 21' – Jun 25' Toronto, Canada

PUBLICATIONS

1. **A. Lau**, Y. Choi*, V. Balazadeh*, K. Chidambaram*, V. Syrgkanis, R. Krishnan. “**Personalized Adaptation via In-Context Preference Learning**”. NeurIPS Workshop on Adaptive Foundation Models, 2024.
2. W. Guo, **A. Lau**, J. C. Davies, V. Forte, E. Grinspun, L. A. Kahrs. “**Analyzing the effect of undermining on suture forces during simulated skin flap surgeries with a three-dimensional finite element method**”. EG VCBM, 2024.
3. A. Johansen, K. Hur, J. Hung, R. Castellon, T. Peng, S. Ren, R. White, C. Park, **A. Lau**, S. Shah, H. J. Choi, W. Wang, P. Sripitak, M. Elhusinni, M. Snyder. “**The Wearipedia Project: a free and open-source resource for understanding and using wearables in decentralized clinical trials**”. medRxiv, 2025.
4. A. Khandelwal, S. Jeram, R. Dungee, A. Lau, **A. Lau**, E. Sun, P. Van-Lane, S. Chen, A. Tohuvavohu, T. Li. “**Beyond CCDs: Characterization of sCMOS detectors for optical astronomy**”. SPIE Astronomical Telescopes + Instrumentation, 2024.

EXPERIENCE

AI Research Engineer, Vocadian <i>Harvard-MIT-founded startup applying voice and biosignal AI for fatigue prediction and workplace safety</i> <ul style="list-style-type: none">• Developing an end-to-end prototype integrating voice input, structured data extraction, and LLM-based natural language reporting for real-world field use cases (trucking, manufacturing, aviation).	Jun 25' –
Research Intern, University of Toronto Vector Institute for Artificial Intelligence Supervisor: Rahul Krishnan <ul style="list-style-type: none">* Research in in-context learning for causal effect estimation with unobserved confounding [1]* Implemented meta in-context learning algorithm for Large Language Model (LLM) post-training* Technical areas: RLHF methodologies including PPO and DPO algorithms, preference-based learning frameworks, memory-augmented neural architectures, and distributed LLM training on GPU clusters Secure Intelligent and Trustworthy Systems Lab Supervisor: Gururaj Saileshwar <ul style="list-style-type: none">* Research in attacks on tool-augmented LLMs – Work in Progress Toronto Computational Imaging Group Supervisor: David Lindell <ul style="list-style-type: none">* Research in applications of polarization data retrieved from a coherent LiDAR prototype system* Processed and analyzed polarization data, identifying key features and evaluating their potential applications for future research and system improvements* Technical areas: Coherent LiDAR systems, polarization imaging principles, optical signal processing, and computational imaging methods Medical Computer Vision and Robotics Lab Supervisor: Lueder Kahrs <ul style="list-style-type: none">* Research in rhomboid surgical skin flap closure dynamics via physics-based animation for determining optimal undermining area [2]* Developed skin simulation models based on finite element method (FEM) and explored various hyper-elastic models* Technical areas: Finite element method, programming in Blender, MATLAB, C++[Eigen] Dunlap Institute Supervisor: Ting Li	May 23' – Aug 25'

- ✱ Research in statistical sCMOS detector characteristics such as linearity, dark current and salt and pepper noise for space imaging [4]
- ✱ Designed and organized experimental setups for testing CMOS detectors, including calibration procedures and ensuring optimal conditions
- ✱ Technical areas: Data analysis, experimental setup and developing image processing pipelines for astronomical data reduction

Research Intern, Stanford University | Supervisor: Michael Snyder

Jan 24' – Jan 25'

- 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 [3]
- Developed Wearipedia usage tutorial notebooks [code]
- Forged partnership with potential collaborator brands and data banks on data access and integration

PROFESSIONAL DEVELOPMENT

RippleX Fellowship

Jun 15' – Aug 25'

A 12-week remote fellowship focused on startup building and venture capital fundamentals

- Gained practical knowledge in VC deal structures, term sheets, cap tables, due diligence, investment memo writing, market analysis, product-market fit, and startup evaluation frameworks
- Participated in a North America-wide network of aspiring founders, operators, and investors

Certifications

- Bloomberg Finance Fundamentals

ENGINEERING PROJECTS

Aerodynamics Engineer, UofT Blue Sky Solar Racing

May 23' – May 25'

- Oversaw the R&D division and the technical division of the team, designed training material and mentored junior members
- Led R&D projects on optimal extrusion fillet radius, crosswind boundary conditions validation, rolling and static wheels simulations and mesh sensitivity test
- Evaluated aerodynamic performances of original and enemy aerobodies with specification in canopy and flange designs with 3D modelling and CFD simulation with textbook verifications, informed subsequent design iterations

AWARDS

[ETH] Excellence Scholarship (ESOP)	2025
[UofT] Vector Scholarship in Artificial Intelligence (declined)	2025
[UofT] Dean's List	2021–2024
[UofT] DCS Academic Travel Grant	2024
[UofT] NSERC Undergraduate Student Research Award	2024, 2025
[UofT] Class of 3T0 and Associates Scholarship in Mathematics and Physics	2023
[UofT] The Chancellor's Scholarship, Trinity College	2022
[UofT] University of Toronto Scholar	2021

SKILLS

Programming: Python [PyTorch, scikit-learn, NumPy, SciPy, Pandas], C/C++, CUDA, MATLAB, R, HTML/CSS/JavaScript/TypeScript [React] [projects], \LaTeX

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 22' – Apr 23'

- Led meetings and collaboration with community partners in club events

Vice President, UofT Cantonese Debate Society

Sep 22' – Apr 23'

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