

Michael Jing Long Lee

michael.lee@cl.cam.ac.uk • github.com/michaelleejl

Education

University of Cambridge

CAMBRIDGE, U.K.

Visiting Student, Department of Computer Science and Technology

2025 – PRESENT

RESEARCH Combining macros with OCaml's module system, with Dr. Jeremy Yallop; first-author paper under submission to PLDI 2027.

University of Cambridge

CAMBRIDGE, U.K.

MPhil in Advanced Computer Science

2024 – 2025

RESULT Distinction; ranked 1st.

DISSERTATION *Everything in Scope: A Comprehensive Comparison of Dynamic Scope Extrusion Checks*. Designed a dynamic scope-extrusion check for MacoCaml, ensuring that compile-time metaprogramming in OCaml interacts safely with effects. Supervised by Dr. Jeremy Yallop; joint-best MPhil dissertation; published at POPL 2026 as *Handling Scope Checks*.

COURSES Advanced Topics in Programming Languages, Category Theory (full marks), Proof Assistants, Multicore Semantics and Programming, Mobile Health.

University of Cambridge

CAMBRIDGE, U.K.

BA (Hons) in Computer Science

2021 – 2024

RESULTS First Class Honours in every year; starred First (Distinction) in Year 3; ranked 5th of 115, 1st of 116, 1st of 118. Highest mark in Human-Centred AI, a module shared with MPhil students.

DISSERTATION *An Ergonomic Library for Data Manipulation*. A type system and denotational semantics for tables over hierarchical data. Supervised by Dr. Damon Wischik; second-highest mark in the year.

Awards

- Best overall student, MPhil in Advanced Computer Science, University of Cambridge 2025
- Examiners' Prize for best MPhil dissertation (joint), University of Cambridge 2025
- Georgina Holgate Memorial Prize for best student in the Computer Science Tripos, University of Cambridge 2024
- Regional Winner (U.K.), Global Undergraduate Awards, Computer Science 2024
- Winner, Entrepreneurs First AI Find Hackathon 2023

Publications

- **Michael Lee**, Maite Kramarz, Ningning Xie, Jeremy Yallop. *A Mixed-Level Calculus*. **PLDI 2027**, under submission.
- Theo Wang, Dario Stein, **Michael Lee**, Eli Bingham, John Feser, Ohad Kammar, Sam Staton, Jeremy Yallop. *From Structural Causal Models to Higher-Order Causal Probabilistic Programming*. **POPL 2027**, conditionally accepted.
- **Michael Lee**, Ningning Xie, Oleg Kiselyov, Jeremy Yallop. *Handling Scope Checks: A Comparative Framework for Dynamic Scope Extrusion Checks*. Proc. ACM Program. Lang. 10, **POPL 2026**, Article 39. Extended version: [arXiv:2601.18793](https://arxiv.org/abs/2601.18793).
- Theo Wang, Dario Stein, Eli Bingham, John Feser, Ohad Kammar, **Michael Lee**, Jeremy Yallop. *Typed Abstractions for Causal Probabilistic Programming*. **LAFI 2026** (co-located with POPL 2026), extended abstract.
- **Michael Lee**, Advait Sarkar, Alan Blackwell. *Predictability of Identifier Naming with Copilot: A Case Study for Mixed-Initiative Programming Tools*. **PPIG 2024** (35th Annual Workshop, co-located with VL/HCC 2024).

Talks & Service

- *Handling Scope Checks*. POPL 2026, Rennes, France, Jan 2026.
- *A Comparative Framework for Dynamic Scope Extrusion Checks*. S-REPLS 17, hosted by Amazon, London, Oct 2025.
- *Predictability of Identifier Naming with Copilot*. PPIG 2024, Liverpool, Sep 2024.
- Session Chair, *Design and Debugging*, PPIG 2024, Liverpool, Sep 2024.

Experience

VBR Robotics

LONDON, U.K.

Software Engineer (first engineering hire)

NOV 2025 – PRESENT

- Built a forward/inverse kinematics library in two weeks; still in production with few changes.
- Built multi-view registration and volumetric SLAM from static and moving depth cameras with unknown poses, as a simple reference pipeline and an optimised pipeline checked against it by proof and regression testing.
- Designed a *registration language* for specifying reconstruction problems, with explicit unknowns and graded certainty (Guess, Confident, Defined); colleagues now use it to set up a camera rig once and reuse it across recordings.

Cogna

Software Engineering Intern

LONDON, U.K.

JUL 2025 – OCT 2025

- Designed extensions to a domain-specific language for formal business requirements that report ambiguity.
- Used LLMs to generate programs in the DSL; built UIs for LLM-assisted programming.

University of Cambridge

Research Intern

CAMBRIDGE, U.K.

JUL 2024 – SEP 2024

- Developed a semantics for Pearl-style causal interventions in programming languages, via thread-local storage and delimited continuations, drawing analogies to probabilistic and multi-stage programming.
- Compared this approach with existing measure-theoretic axiomatisations of causality.

University of Cambridge

Research Intern

CAMBRIDGE, U.K. (REMOTE)

JUL 2023 – SEP 2023

- With researchers at Cambridge, NYU and CMU, learned personalised decision-support policies online.
- Built Modiste v2 (JavaScript front end, Python on AWS Lambda), extensible to any multi-armed bandit; ran human experiments.

Tripadvisor (Viator)

Software Engineering Intern (Full Stack)

OXFORD, U.K.

JUN 2023 – SEP 2023

- Migrated feature flags to a microservice with per-session overrides, reducing update time from hours to minutes.

Constructiviq

Software Engineering Intern

SINGAPORE

JUL 2022 – OCT 2022

- With Dr. Luke Church, prototyped mechanisms for extracting detailed failure information from ML systems.

Teaching

University of Cambridge

Undergraduate Supervisor

CAMBRIDGE, U.K.

2025 – PRESENT

- Supervise about 30 students a year, using supervision sheets I write myself.
- Foundations of Computer Science (Part IA)

2025, 2026

FITZWILLIAM · JESUS · WOLFSON · DOWNING (2026)
- Semantics of Programming Languages (Part IB)

2025, 2026

FITZWILLIAM · JESUS · WOLFSON · CHRIST'S
- Computation Theory (Part IB)

2026

FITZWILLIAM · JESUS · WOLFSON

University of Cambridge

Teaching Assistant, Advanced Topics in Programming Languages (MPhil)

CAMBRIDGE, U.K.

2025

Teaching materials (OCaml)

- register-machines (a register machine compiler) and partial-recursion, for Part IB Computation Theory.
- lexing-parsing: practicals for the lexing and parsing section of Part IB Compiler Construction.
- Initiated a project to teach the Lean proof assistant in Part IA Discrete Mathematics.

Leadership & Activities

National Service

Private

SINGAPORE

2019 – 2021

- Led a team replacing paper key logbooks with a digital system, with the Commanding Officer's support; used by about 100 people and still in use after I left.

Singapore Policy Journal

Editor; Senior Editor and Core Team Member (2021–2022)

2020 – 2023

- Organised *From Brown to Green* (environmental policy and the economy) and *SSEAF: The Singaporean Dream*.

Fully Connected

Committee Member

CAMBRIDGE, U.K.

DEC 2022 – MAR 2023

- Led a team of 10 running an ML research event at the Computer Laboratory: talks by 6 researchers (incl. Petar Veličković and Murray Shanahan), roundtables and panels for ~100 participants.

- Project Access, Volunteer Mentor: mentored two underprivileged Oxbridge applicants.

2024 – 2025
- ACS (Independent), Singapore, Debate Coach: coached about 30 debaters to the semi-finals.

2021