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Kiran Gopinathan

Computer Science Researcher working on Proof Maintenance.

Fluent in OCaml, Lean and Rocq.

Education & Qualifications

2025 Jan - Present	Working as a Postdoctoral Researcher at the University of Illinois Urbana-Champaign under the Thomas M. Siebel Center for Computer Science.
2024 August - Sept	Awarded a Doctor of Philosophy in Computer Science from the National University of Singapore under the School of Computing Dept.
	Awarded the 2024 NUS' Dean's Graduate Research Excellence Award.
	Given to senior PhD students who have made significant advancements in their PhD study.
2019 May - June	Achieved a First Class Honours Bachelor's Degree in Computer Science from UCL
	Graduated from University College London
	Awarded Goldsmid Medal for the top graduating student of the Faculty of Engineering
2016 May - June	Achieved 4 A* A level grades in Physics, Chemistry, Further Maths and Maths
	Graduated from Magdalen College School

Publications

2025 Y. Ling, G. Rajiv, K. Gopinathan, and I. Sergey. Sound and efficient generation of Data-Oriented exploits via programming language synthesis. In *34th USENIX Security Symposium (USENIX Security 25)*. USENIX Association, 2025

2024 C. Le, K. Gopinathan, K. W. Lee, S. Gilbert, and I. Sergey. Concurrent data structures made easy. *OOPSLA*, 2024

2023 K. Gopinathan, M. Keoliya, and I. Sergey. Mostly automated proof repair for verified libraries. *PLDI*, 2023
Awarded ACM SIGPLAN Distinguished Paper Award

S. Thy, A. Costea, K. Gopinathan, and I. Sergey. Adventure of a lifetime: Extract method refactoring for rust. *OOPSLA*, 2023

M. Flatt, T. Allred, N. Angle, S. D. Gabrielle, R. B. Findler, J. Firth, K. Gopinathan, B. Greenman, S. Kasivajhula, A. Knauth, J. A. McCarthy, S. Phillips, S. Porncharoenwase, J. A. Søgaard, and S. Tobin-Hochstadt. Rhombus: A new spin on macros without all the parentheses. *OOPSLA*, 2023

2021 Y. Watanabe, K. Gopinathan, G. Pîrlea, N. Polikarpova, and I. Sergey. Certifying the synthesis of heap-manipulating programs. (ICFP), 2021

2020 K. Gopinathan and I. Sergey. Certifying Certainty and Uncertainty in Approximate Membership Query Structures. *CAV*, 2020
Awarded Second Place Medal for the PLDI 2020 Student Research Competition

2019 K. Gopinathan and I. Sergey. Towards mechanising probabilistic properties of a blockchain. *CoqPL*, 2019

2018 K. Gopinathan, N. A. Kaloumenos, K. Ajmera, A. Matei, I. Williams, and A. Davis. FHIR FLI: an open source platform for storing, sharing and analysing lifestyle data. *ICT4AWE*, 2018

Work Experience

2019 **Aetna International Research Internship,** London

- Researched the use of Deep Learning techniques for the processing of FHIR insurance data in collaboration with the Aetna International Health Insurance company.
- As part of the internship, designed and implemented several industrial-scale machine learning pipelines, gaining experience with the processes of large scale data mining.

2018 **UCL PPLV Research Internship - Probchain,** London

- Performed research into the mechanisation of the paper "Analysis of the Blockchain Protocol in Asynchronous Networks", the results of which were presented at the COQPL 2019 Conference.