Lauren Pick

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Education

2016 - 2021	**Princeton University**, Princeton, NJ, USA Ph.D. Computer Science Advisor: Aarti Gupta Thesis: Scaling Automatic Modular Verification
2013 - 2016	**Homerton College, University of Cambridge**, Cambridge, UK B.A. Hons Computer Science

Awards and Scholarships

2022 - 2024	**CIFellows Postdoctoral Fellowship** with Aws Albarghouthi
2018 - 2021	**NSF Graduate Research Fellowship Program (NSF GRFP) Fellowship**
2017	**VMW Travel Scholarship** to attend the Verification Mentoring Workshop and CAV
2016 - 2021	**Dean's Grant**, Princeton University
2015, 2016	**David Thompson Scholarship**, Homerton College, University of Cambridge
2013 - 2016	**Cambridge Overseas Trust Scholarship**

Research Experience

Jan 2022 -	**Postdoctoral Researcher**, University of Wisconsin-Madison, Madison, WI, USA
Nov 2021 -	**Postdoctoral Researcher**, University of California, Berkeley, Berkeley, CA, USA
Sept 2016 - Nov 2021	**Research Assistant**, Princeton University, Princeton, NJ, USA Developed techniques to infer and use domain-targeted invariants to scale automated verification.
April - July 2021	**Intern**, Amazon Web Services, USA Continued work on scalable symbolic execution and verification of distributed systems written in P.
May - August 2020	**Intern**, Amazon Web Services, USA Worked on developing and implementing techniques for scalable symbolic execution of distributed systems specified in the P language.
June - August 2018	**Intern**, Amazon Web Services, New York, NY, USA Worked on applying formal verification to security-critical code as part of AWS Security's Automated Reasoning Group.
July - Aug 2016	**Student Associate**, SRI International, Menlo Park, CA, USA Worked on using abstract interpretation to find additional invariants useful to the Sally model checker. Sally: http://sri-csl.github.io/sally
June - Aug 2015	**Intern**, NASA Langley Research Center, Hampton, VA, USA Implemented a bounded Metric Temporal Logic library for the Copilot eDSL. Collaborated with another intern to write monitors for properties of aircrafts in Copilot. Copilot: http://github.com/copilot-language/Copilot

Teaching Experience

Spring 2018	**Teaching Assistant**, Princeton University, Princeton, NJ, USA COS226: Data Structures and Algorithms
Fall 2017	**Teaching Assistant**, Princeton University, Princeton, NJ, USA COS516: Automated Reasoning about Software

Publications and Presentations

Psym: Efficient Symbolic Exploration of Distributed Systems. Lauren Pick, Ankush Desai, Aarti Gupta. Programming Language Design and Implementation (PLDI). 2023.

Synthesizing Quantum-Circuit Optimizers. Amanda Xu, Abtin Molavi, Lauren Pick, Swamit Tannu, Aws Albarghouthi. Programming Language Design and Implementation (PLDI). 2023.

AutoWS-Bench-101: Benchmarking Automated Weak Supervision with 100 Labels. Nicholas Roberts, Xintong Li, Tzu-Heng Huang, Dyah Adila, Spencer Schoenberg, Cheng-Yu Liu, Lauren Pick, Haotian Ma, Aws Albarghouthi, Frederic Sala. Conference on Neural Information Processing Systems (NeurIPS). 2022.

Qubit Mapping and Routing via MaxSAT. Abtin Molavi, Amanda Xu, Martin Diges, Lauren Pick, Swamit Tannu, Aws Albarghouthi. International Symposium on Microarchitecture (MICRO). 2022.

Unbounded Procedure Summaries from Bounded Environments. Lauren Pick, Grigory Fedyukovich, Aarti Gupta. International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI). 2021.

Automating Modular Verification of Secure Information Flow. Lauren Pick, Grigory Fedyukovich, Aarti Gupta. Formal Methods in Computer-Aided Design (FMCAD). 2020.

Call-Graph-Guided Verification (Poster). Lauren Pick. Formal Methods in Computer-Aided Design (FMCAD) Student Forum. 2019.

Exploiting Synchrony and Symmetry in Relational Verification. Lauren Pick, Grigory Fedyukovich, Aarti Gupta. International Conference on Computer Aided Verification (CAV). 2018.

Service

Program Committee for PLDI'23.
External Review / Artifact Evaluation Committee for OOPSLA'22.
Subreviewer for FMCAD'20.
Artifact Evaluation Committee for CAV'19.
Subreviewer for ATVA'18.
Subreviewer for CAV'17.

Summer Schools

2017	Marktoberdorf Summer School on Logical Methods for Safety and Security of Software Systems
2017	Oregon Programming Languages Summer School

Other Activities

Summer 2022	Mentor, Transfer-to-Excellence Summer Research Program, Berkeley, CA, USA Co-mentored an undergraduate community college student on a summer research project on program synthesis for distributed systems.
Spring 2019	Instructor, Prison Teaching Initiative (PTI), Fort Dix, NJ, USA MAT126: Elementary Statistics II PTI: https://mcgraw.princeton.edu/PTI
2017 - 2019	Officer, SACNAS (Princeton Chapter), Princeton, NJ, USA 2017-2018: Treasurer, 2018-2019: Secretary SACNAS: http://sacnas.org
Nov 2014, Feb 2016	Volunteer, STIMULUS, Cambridge, UK Teaching assistant. Helped with classes at a local sixth form college. 2014: AS-Level Mathematics, 2016: AS-Level Computing STIMULUS: http://stimulus.maths.org