

# LAY KUAN LOH

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🌐 <https://lkloh.github.io/>

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## EDUCATION

### Carnegie Mellon University

Master of Electrical and Computer Engineering (Leaving the PhD program), GPA: 3.77/4.00.

*Selected Coursework:* Program Analysis, Web Security, Privacy Engineering

Pittsburgh, PA

Expected May 2017

### Stanford University

Bachelor of Mathematics & Minor in Computer Science, GPA: 3.26/4.00.

*Selected Coursework:* Data Structures, Algorithms

Stanford, CA

Jun 2013

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## SKILLS

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| <b>Technical</b> | <i>Currently using:</i>                         | Python, Java, L <sup>A</sup> T <sub>E</sub> X |
|                  | <i>Prior experience with:</i>                   | Matlab, C++, C, SQL, JavaScript, HTML, CSS    |
|                  | <i>Version control:</i>                         | Github, Svn, Bitbucket                        |
| <b>Languages</b> | English (Fluent), Mandarin Chinese (Proficient) |   |

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## RESEARCH EXPERIENCE

### Carnegie Mellon University

Graduate Research Assistant

Pittsburgh, PA

Aug 2014 - Present

- *Reducing the storage overhead required to record the metadata of network events at scale.* Developed a novel algorithm to compress the metadata of network events and formally proved that it behaves as expected (i.e. the algorithm can reconstructed the complete metadata of network events from the compressed data stored). The key is to identify network events with similar behaviors, then store the metadata for multiple similar network events just once.
- *Investigating the effectiveness of privacy tools.* Wrote Python scripts to scrape advertisements from live websites (e.g. BBC, CNN) to determine the extent to which privacy tools (e.g. Tor, AdblockPlus) defend users against online profiling by advertisement networks.
- *Automatically verifying properties of networking protocols.* Used C++ to implement an algorithm to verify whether desirable properties of network protocols hold. Formally proved it is sound and complete for non-recursive protocols.

### Stanford University

Undergraduate Research Assistant

Stanford, CA

Jun 2012 - Feb 2014

- *Statistical analysis on volcanic vents.* Collated data on volcanic vents in the Cascades Region from multiple sources to assemble a multiparameter database. Used unsupervised learning techniques to group similar vents together.
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## PUBLICATIONS

- Chen Chen, Harshal Lehri, Lay Kuan Loh, Anupam Alur, Limin Jia, Boon Thau Loo and Wenchao Zhou. *Distributed Provenance Compression*. To appear in SIGMOD/PODS 2017.
  - Amit Datta, Anupam Datta, Lay Kuan Loh, Michael Carl Tschantz, and Zheng Zong. *Poster: Evaluating the effectiveness of privacy tools using Information Flow Experiments*. In IEEE S&P 2016.
  - Chen Chen, Lay Kuan Loh, Limin Jia, Wenchao Zhou, and Boon Thau Loo. *Automated Verification of Safety Properties in Declarative Networking Programs*. In PPDP 2015.
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## SOFTWARE DEVELOPMENT EXPERIENCE

### Northwestern University

Summer Intern

Evanston, IL

May - Jun 2014

- *Enhancing usability of a tool for measuring seismic wave arrival times.* Solicited user suggestions to enhance the usability of an open-source software tool developed in Python. Added those features to the user interface.

### MathCrunch (now Yup Technologies)

Front-end Engineer

Menlo Park, CA

Aug 2013 - Apr 2014

- *Matching students to tutors.* MathCrunch matches students seeking help with their Mathematics homework with qualified online tutors. Styled the company website with CSS and used JavaScript to enhance the user experience. Wrote QA tests to verify the behavior of the codebase.
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## TEACHING EXPERIENCE

### Carnegie Mellon University

Teaching Assistant

Pittsburgh, PA

Fall 2015 & 2016

- *Teaching Assistant.* Gave recitations, held office hours, managed the course webpage, supervised students on projects, and graded homework for the graduate-level classes *Introduction to Information Security* and *Foundations of Privacy*.
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## AWARDS

**Programming Languages Mentoring Workshop – Funded**, ACM SIGPLAN

Jan 2017

**Grace Hopper Essay Contest Winner**, Electrical and Computer Engineering

Oct 2016

**Certificate of Recognition for Contributions to the Community**, CyLab

May 2016

**Dean's Tuition Fellowship**, Carnegie Institute of Technology

Apr 2014

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