

Matthew Chan

mattchan@ucsd.edu • <http://parametri.city>

Education

B.Sc. in Computer science, University of California, San Diego Expected June 2017
Minor in Mathematics. GPA: 3.62

Relevant coursework (* graduate course)
Programming languages*, Building secure systems with PL*, Compilers*, Computer networks, Operating systems, Cryptography, Algorithms, Abstract algebra, Game theory, Linear programming, Theory of computation.

Experience

Software Engineer, [Awake Networks](#), Mountain View, CA beginning June 2017
Packet analysis in Haskell.

Software Engineering Intern, [Awake Networks](#), Mountain View, CA Summer 2016
Worked in the packet analysis team on parallel processing of network packets in Haskell.
Wrote parsers and developed online algorithms for reconstructing sessions for several application layer protocols.

Undergraduate Researcher, [Programming Systems group](#), UC San Diego April 2015–present
Research on language-based security with Prof. Deian Stefan. Prototyped an EDSL in Haskell for garbled circuits with the goal of enabling semantic and calculational proofs of correctness. Currently working on a framework for building compositional exploit generators/program checkers. (Sep 16–)
Worked with Prof. Sorin Lerner’s group on formal verification of hybrid systems using the Coq theorem prover. Contributed to a machine-checked proof of exponential stability for P-controllers [1]. Wrote a stage of program synthesis of temporal logic specifications into C programs. (Apr 15–Feb 16)

Undergraduate Tutor, [CSE Department](#), UC San Diego January 2015–present
Held weekly lab and office hours, answered questions on Piazza forum, graded exams.

CSE 130 Programming languages. *Academic years 2015–17*
Served as Teaching Assistant for [Winter ’16](#). Led discussion sections, created homework and exam problems.

CSE 11 Accelerated introduction to Java. *Winter ’15*

Software Engineering Intern, [CleanSpark](#), Poway, CA Summer 2015
Worked on the CleanSpark microgrid monitoring portal. Optimized data pipeline, achieving up to a 5x speedup.
Built typesafe DSLs in Scala for working with various web APIs and generating UI components.
Used Javascript, Java, Scala.

Publications

[1] M. Chan, D. Ricketts, S. Lerner, and G. Malecha, “Formal verification of stability properties of cyber-physical systems,” in *CoqPL’16: The Second International Workshop on Coq for PL*, Jan. 2016.

Awards

PLMW travel scholarship for [SPLASH 2016](#)

Activities

Eve Security, *Principal member* 2013–present
Undergraduate computer security club. Co-maintainer of git.ucsd.edu (2015–).

Personal projects — more at github.com/themattchan and parametri.city/projects

purescript-reveal A domain specific language for building presentations in Purescript.
pickle A small static site generator in Haskell.
liquid-types.el Emacs integration for Liquid Haskell (maintainer and contributor).
interacTV Interactive HUD overlay for set-top boxes. Won second place for DirecTV hack at HackMIT 2015.

Technical skills

Languages **Haskell**, Purescript, Scala, C, Racket/Scheme, OCaml, Java, C++, Python, Javascript
Frameworks etc Reactive Extensions, Play, Lens
Markup and Tools \LaTeX , S-expressions, HTML, Emacs, Linux, Git