Lewis J. Ellis

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Work Experience

- **Sentry.io** — **San Francisco, CA**
  Software Engineer — *August 2016 - June 2017*
  - Contributed primarily to raven-node, Sentry's error reporting SDK for Node.js, and also to raven-js.
  - Released 1.0 & 2.0 milestones, bringing advanced capabilities by deeply understanding the Node.js error mechanisms and the asynchronous context problem. Saw download numbers quadruple in six months.
- **Shape Security** — **Mountain View, CA**
  Software Engineer, SWE Intern (KPCB Engineering Fellow) — *May – August 2014, August 2015 - August 2016*
  - Designed, spec'd, and implemented SuperPack serialization format to reduce typical payloads from 20kB of JSON to 6kB of base64, using a 3kB browser JavaScript encoder; saved 20-30TB of bandwidth per month.
  - Researched & implemented detection and obfuscation techniques to increase detection efficacy against advanced adversary tooling like Selenium and FraudFox.
- **App.net** — **San Francisco, CA**
  Software Engineering Intern — *May – August 2013*
  - Migrated search backend from Solr to ElasticSearch; restructured test suites to reduce build times by 15%; improved how API objects can represent relationships between posts, users, places, files, and media.
- **University of Pennsylvania** — **Philadelphia, PA**
  Teaching Assistant & Head Teaching Assistant — *Spring 2012 – Spring 2015*
  - CIS 120 (OCaml, Java): 4 semesters. CIS 160 (Math Fdns of CS): Fall 2014 head TA, leading a staff of 18.
  - CIS 121 (Data Structures & Algorithms): Spring 2015 head TA, leading a staff of 20 & designing new programming assignments. Received student feedback ratings of 3.6 (out of 4), vs. average of 2.7.

Education

- **University of Pennsylvania** — **Philadelphia, PA**
  School of Engineering & Applied Science, BSE, Networked and Social Systems — *Fall 2011 – Spring 2015*
  - First graduating class of new CS variant focused toward math, the internet, distributed systems, network theory; coursework included AI, Algorithms, Algo. Game Theory, Databases, Functional Programming, Compilers, Crowdsourcing, Cloud Computing, Networked Systems, Theory of Networks, Network Security, Cryptography, Formal Linguistics, Stochastic Systems, Probability, Linear Algebra, Discrete Math
  - Lead organizer of PClassic, a high school programming contest with 300+ participants per semester.
  - Core organizer & MC of PennApps hackathon, Penn CIS TA hall of famer, developer with PennLabs.
  - Penn Ultimate player, Penn Track & Field long jumper. GPA: 3.7 in-major, 3.6 overall.

Projects

- Bruce API: System for securely & scaleably executing arbitrary untrusted pieces of code for various uses. Built front-ends for programming contest judging & homework submission/grading. Received 4th out of 30 teams in Penn CIS Senior Design. Still in use by multiple Penn CIS courses.
- Bee-Queue: Simple, fast, robust Redis-backed task queue for Node.js, built to beat perf. of existing alternatives.
- awesome-lua: High-quality compilation of the modern Lua ecosystem; 1300+ stars on GitHub, listed on Lua.org.
- Cumulonimbus (Finalist, Greylock Hackfest 2014). Seamlessly joins multiple cloud storage accounts into one.
- Dropbox IDE (2nd place, HackRU Fall 2012). In-browser IDE which uses Dropbox as the user's workspace.
- PSPNet, PSPTD (2008). Text-based web browser, tower defense game, in Lua for the PlayStation Portable.

Skills, Technologies, & Interests

Strong with: JavaScript, Node.js, Lua, Python, Redis, SQL, VSCode, Git, Docker, AWS, Web application security
Familiar with: OCaml, Haskell, Common LISP, OpenResty, ElasticSearch, C, HTML/CSS, LaTeX
Presentations: Robust Error Handling in Node.js, Idiosyncrasies of NaN, ESLint talk, Node.js intro workshops
Hobbies/Interests: Math & trivia nerd: Canada/USA Mathcamper, National Science Bowler. Wikipedia binger. Club-level Ultimate player. Cars, basketball, cubing, climbing, teaching, biking, skiing, penguins.