Jonathan P. Chen

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EDUCATION

UNIV. OF PENNSYLVANIA

Bachelor of Science in Engineering, 2015
Major: Computer Science
Minor: Physics, Mathematics

TECHNICAL SKILLS

PROGRAMMING

Languages
(In order of proficiency)

- Java, Python, C, Bash, SQL, Ruby, JavaScript, OCaml, Verilog
- HTML, CSS, XML, LaTeX

Frameworks

- Django, Flask, Rails, Node.js

TOOLS

AWS

- EC2, ELB, S3, R53, CW, CF AS, SQS, DynamoDB, MySQL

Machine Learning

- TensorFlow, Hadoop

MATLAB, Mathematica

- Modeling, simulations, scripting

TEACHING

INTRO. COMPUTER THEORY

Teaching Assistant

- Prepared material for weekly recitations for about 200 students
- Grade homeworks and exams
- Hold office hours and answer questions on Piazza

LINUX AND UNIX PROG.

Teaching Assistant

- Prepared and grade homeworks
- Hold office hours and answer questions on Piazza

SOFTWARE DESIGN & DEV.

Teaching Assistant + Project Manager

- Oversee team's software development using an agile model
- Coordinate meetings between real customers and teams

INDUSTRY EXPERIENCE

AMAZON WEB SERVICES | Software Engineer

EC2 Networking: Elastic Load Balancing
August 2015 – | Seattle, WA

- Launched three new AWS regions for ELB and created automation systems to reduce build time by over 90%
- Built control plane support for L7 load balancing, including content based routing
- Built new ELB data transfer and data processing metering system
- Primarily used Java, Ruby, Oracle (SQL)

GOLDMAN SACHS | Strategies Analyst Intern

Fixed Income, Currency, Commodities & Equities Clearing
June 2014 – August 2014 | New York, NY

- Created the Market Data Quality Analyzer to aggregate performance data of publishers used for high frequency trading
- Developed the Margin Risk Analyzer to calculate risk margins and optimize strategies
- Used Java, C++, Slang (native language)

RESEARCH

ZERO KNOWLEDGE AUTHENTICATION PROTOCOL

Adviser: Prof Nadia Heninger

- Developed and implemented the first Zero-Knowledge authentication protocol using keystroke dynamics
- Used typing patterns to generate biometric data, and used fuzzy extraction of locally sensitive hashed key timings
- Protocol uses hardness of discrete log problem and therefore is completely invulnerable to MITM or eavesdropping attacks.

SPECTRAL ANALYSIS AND OPTIMIZATION SOLUTIONS IN PROJECTIVE SPACES

Adviser: Prof Jean Gallier

- Spectral analysis of graphs and their applications in computer vision
- Solve singular value decompositions of optimization problems in varying projective planes
- Analyzed multiclass spectral clustering, eigendecompositions of graph Laplacians with MATLAB

RECENT PROJECTS

GO AI | Python

- Go Engine that used machine learning and pattern recognition to play Go.
- Implemented neural net from scratch and used Monte Carlo Tree Search to make move decisions
- Used spectral analysis on graph Laplacians of game board to assess position

EOS | Python, Javascript

- PennApps Spring 2015 1st Place - Ziggeo API
- Online platform for professors to livestream lectures and office hours with real-time comment system and live newsfeed

TUX OS | C

- Command line UNIX operating system with Round-robin dynamic scheduler and flat-FAT file system