Patrick Zhu

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Education

University of Illinois at Urbana-Champaign — **Urbana-Champaign, IL**
Bachelors of Science in Computer Science — *December 2017*

Relevant Coursework: Communication Networks, Distributed Systems, Machine Learning, Introduction to Computer Security, Art of Web Programming, Algorithms and Models of Computation, Database Systems

Summary Of Qualifications

- Experience in C (Highly Proficient), Python (Highly Proficient), C++, Java
- Experience with various computer security techniques such as buffer overflows, DoS, XSS, CSRF, SQL-injections, and basic cryptography (AES, RSA, Diffie-Hellman key exchange)
- Experience with routing protocols (Link State, Distance Vector, Path Vector) and network communication protocols (TCP, UDP)
- Experience with machine learning concepts such as on-line learning (Perceptron, Winnow), computational learning theory (VC Dimension, PAC learnability), neural networks, bagging/boosting, SVMs, probabilistic learners (Naive Bayes), and expectation-maximization algorithms
- Experience with SQL (MySQL, SQLite) and NoSQL (MongoDB) databases.
- Experience with the MERN web stack (MongoDB, Express, React, NodeJS)

Work Experience

- **S&C Electric Company** — **Alameda, CA**
  Software Intern — *June 2017 - August 2017*
  - Developed PoC for a device utilizing the GE Predix IIoT platform to demonstrate the ability to minimize OTA data transfer by performing more analysis on edge devices as well as the ability for multiple edge devices to coordinate together to autonomously
  - Created a module to perform three-phase waveform analysis on the PoC device in order to measure waveform health as well as to perform fault analysis

Projects

- **hattr.party Web Application** — **UIUC**
  Art of Web Programming (CS498 RK) — *Fall 2017*
  - Created a fully functional MERN stack web application which provides a platform for users to view, rate, and upload fashion outfits
  - Implemented front-end components, including a masonry gallery, modals, commenting, and image tagging, and back-end components for simple user authentication and user/post REST endpoints.
  - Application was chosen for end of semester web app competition
- **TCP-like Protocol** — **UIUC**
  Communication Networking (CS438) — *Spring 2017*
  - Implemented reliable packet transferring over UDP
  - Flow control was done using a sliding window with selective repeat
  - Congestion control was done using slow start, AIMD congestion window control, and fast-retransmit
- **Counter-Strike Match Predictor** — UIUC
  Fall 2016
  - Implemented in Python
  - Created a crawler to scrape 3 years worth of match data
  - Cleaned data to include various features to learn on such as consecutive wins/losses, average margin of victory, recent win/loss record, etc.
  - Trained a classifier on the cleaned data using a random forest classifier from the scikit-learn library