Conor L. Curry

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Selected Projects

Network Security – Java

- Designed and implemented cryptographically **secure distributed file-storage server** and client software.
- Secured via hierarchical group systems, asymmetric (RSA), symmetric (AES), and authentication (HMAC) cryptography.
- Systems audited for soundness of security of design and development by professor and live tech demos.
- Partner-based term project, used **git version control** workflow.

Data Science – Python

- Designed and developed Bitcoin blockchain **statistical simulation** to optimize blocksize as a function of transaction frequency and fees.
- Processed large amounts of **real-world blockchain data** to calibrate parameters, evaluating the effects of potential Bitcoin design decisions on long-term **scalability**.
- Team-based term project, used git version control workflow.

Sensor Research – Python

- Research and development of Raspberry Pi based **presence sensors**, to determine number of persons in a room.
- Used OpenCV computer vision library, developed an efficient adaptive background subtraction algorithm suitable for an embedded application.
- In a busy office setting with varying levels of natural light, the detection was able to achieve a 80% accuracy level throughout a workday.

Skills

- Data processing and analysis for various sensor systems, including **computer vision** and **speech sensing**
- Strong knowledge of **Python**, **Java**, **C**, and **Julia** for everything from self-contained scripts to multi-file team projects
- Experience with complex software engineering fields, such as **cryptography**, **graphics**, and **HPC**
- **Teaching and tutoring** experience in both one-on-one and group-based labs, code reviews, and discussions
- Everyday user of **Linux** systems of various distributions, including Debian, Fedora, and Arch Linux derivatives
- Deep understanding of discrete and continuous **mathematical models**, methods, and analysis

Relevant Work Experience

Undergraduate Research Mentor – *Office of Undergraduate Research* *August 2015 – April 2017*

- Collaborated with representatives across disciplines to improve undergraduate experiences in research *University of Pittsburgh*
- Fostered involvement in research programs through outreach events and assistant teaching

Computer Science Teaching Assistant/Peer Tutor *August 2014 – April 2017*

- Lead weekly lab sections and hold office hours to promote active learning and supplement lectures *University of Pittsburgh*
- Assisted undergraduate students in all CS core classes and several upper-level electives.

Undergraduate Computer Science Researcher – *Lab of Dr. Adam Lee* *January 2014 – September 2015*

- Worked closely with faculty to develop a comprehensive suite of Raspberry Pi presence detection sensors *University of Pittsburgh*
- Conducted and presented research analyzing data collection methods of smartphone sensing systems

Data Acquisition Sourcing Intern – *Maponics* *July – September 2014*

- Automated geographic data collection of school attendance zones using Python **web scraping** tools *White River Junction, VT*
- Interfaced with production **PostgreSQL** GIS databases, storing data for use in machine learning algorithms

Education

Bachelor of Science – *University of Pittsburgh, Dietrich School of Arts and Sciences* *Fall 2013 - Spring 2017*

- Computer Science and Mathematics *Pittsburgh, PA*

Awards & Activities

Study Abroad – Linnéuniversitetet, Sweden *Fall 2016*

Annual University of Pittsburgh Hackathon *2014, 2015, 2016*

- **First place** team-member in the 2015 *SteelHacks* event, for project using real-time brainwave data to generate calming music.

NetApp Systems Research Award *September 2014*

- Award to fund research and development of a distributed, embedded sensor system