

## Sanjay Chandrasekaran

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### Objective:

To pursue a Ph.D. in computer science while exploring other interesting fields such as logic and probability. Have a heavy interest in Networks and Security.

### Education:

- **High School:** Mission San Jose High School (2013)
- **Undergraduate:** Carnegie Mellon University (Fall 2017) – Major: Computer Science, Minor: Robotics
- **Master of Computer Science:** Carnegie Mellon University (Spring 2019) – specializing in IoT Security
- **Ph.D. Candidate in Computer Science:** University of California Santa Barbara (currently)

### Relevant Coursework (+ : Carnegie Mellon University, / : UC Santa Barbara):

- Advanced Topics in Security (CS279) /
- Computer Networks (15-744) +
- Network Security (18-731) +
- Computer Architecture (15-740) +
- Operating Systems (15-410) +
- Introduction to Software Reverse Engineering (14-819) +
- Introduction to Computer Network Security and Applied Cryptography (15-487) +
- Operating Systems Practicum (15-412) +
- Software Foundations of Security and Privacy (15-316) +
- Constructive Logic (15-317) +
- Modern Computer Algebra (15-355) +
- Introduction to Computer Systems (15-213) +
- Machine Learning (10-601) +
- Algorithm Design and Analysis (15-451) +
- Parallel and Sequential Data Structures and Algorithms (15-210) +
- Great Theoretical Ideas in Computer Science (15-251) +
- Probability (36-217) +
- Logic and Proofs (80-210) +

### Skills:

- Coding experience with C(++), Java, Python, JavaScript, SML, OCAML, and x86/ARM assembly
- Experience with common networking tools such as iptables, snort, squid, etc.
- Experience with Linux Binary Exploitation techniques and SQL Injection
- Experience with malware analysis and reversing (obfuscation, anti-debug techniques, etc.)
- Experience with data analysis and visualization (e.g., D3.js)
- Experience with rest-databases and certificates (SSL)
- 2 years of TA experience (15-121 Intro to Data Structures)

### Projects:

- Worked on an IoT Security Gateway, a software-defined gateway that secures IoT devices on the network
- Analyzing the Effectiveness of Graph-Specific Adaptive Cache Policies for Large Graph Applications
- Developed an automated tool to verify *pfSense* firewall configurations for correctness
- Developed an end to end Livestream Video prototype that works over IP Multicast at *Akamai*
- Worked on ShrewdFire, a combination of the Crossfire + Shrew DDoS attacks in NS-3 packet simulator
- Worked on SOL (SDN Optimization Layer) + Chopin (SDN Application Composition) in ONOS
- Created a Web application on an *Akamai* framework that provides advanced diagnostics for their systems
- Implemented a DNS nameserver with OSPF (Open Shortest Path First) & Round-Robin in C
- Wrote a P2P Bittorrent Client (implemented TCP over UDP) in C
- Implemented an HTTP video proxy with bitrate adaption based on throughput calculations in C
- Wrote a HTTP(s) socket-based server with CGI (Common Gateway Interface) support in C
- Wrote a Bayesian Knowledge Tracer (BKT) used for CMU's OLI courses – Watson Project

### Contributions:

- *An Intent-Driven Composition of Resource-Management SDN Applications*. In CoNEXT, 2018.
- *Efficient and Correct Test Scheduling for Ensembles of Network Policies*. In NSDI, 2018.
- *How Quickly Can Wheel Spinning Be Detected*. EDM, 2016.

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- Developer for *picoCTF*, CMU's introductory cybersecurity competition (Jan 2018 – Nov 2019)