

NICHOLAS SEBASTIAN HUSIN

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EDUCATION

University of Illinois at Urbana-Champaign
Bachelor's of Science in Computer Science

Aug '18 - May '22
Cumulative GPA: 4.0

PROFESSIONAL EXPERIENCE

Google
STEP Intern

May '20 - Aug '20

- Implemented Node.js module that concurrently executes untrusted code in sandboxes and visualizes the code interpretation process.
- Created Node.js module that does source code instrumentation by modifying abstract syntax trees, allowing detailed analysis of code such as test coverages to be done.
- Built a custom engine that dynamically generates website content and updates database according to specified YAML files while guaranteeing idempotency, allowing seamless rapid updates to the website.
- Developed in-browser IDE with modern features: linting, auto-format, auto-complete, Vim emulation, etc.
- Researched and presented the potential of adapting BloodHound (open-source Active Directory project) for internal usage by the "Managed Service for Microsoft AD" team.
- Wrote a Python script that runs custom Cypher queries on a Neo4j database as specified on YAML files, resulting in the possibility of automated Active Directory analysis and vulnerability scanning.

University of Illinois at Urbana-Champaign
Course Developer

Jan '19 - Dec '19

- Designed and developed a distributed and scalable grading system on Kubernetes through the use of mirror Git server and RabbitMQ—grades over 15,000 student codes per semester.
- Identified and submitted mitigation steps for several vulnerabilities such as injecting code to leak assignment solutions, crashing Java in-memory compiler through memory exhaustion, etc.

RESEARCH EXPERIENCE

Distributed Protocol Research Group
Undergraduate Researcher

Dec '19 - May '20

- Used Seastar library and PyTorch C++ API to rewrite CNN implementations with better concurrency.
- Wrote scripts to profile GPU usage of CNN training process and analyze how they could be optimized.

IoT Systems Research Group
Team Lead

Aug '19 - May '20

- Led a team of 6 developers to deploy a RESTful API for the backend server and MongoDB database.
- Developed a backend server that asynchronously runs simulations of IoT devices in Docker containers.

XPACC
Undergraduate Researcher

May '19 - Dec '19

- Optimized the speed of parallel computation and I/O by implementing MPI cartesian topologies mapping that takes advantage of the principle of locality.

ACTIVITIES

SIGPwny: Gave talks on security topics, worked with other members to compete in and host CTF events.

Solar Chapter: Created a website and raised funds for development of infrastructures in numerous remote areas.

SKILLS

Languages
Technologies

C, C++, Python, JavaScript, Java, Ruby, Bash
Kubernetes, Docker, Linux, Git, RabbitMQ, Node.js, Rails, Jekyll, Bootstrap