

# NICHOLAS SEBASTIAN HUSIN

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## EDUCATION

### B.S. in Computer Science

#### University of Illinois at Urbana-Champaign

August 2018 – May 2022

Cumulative GPA : 4.0

## EXPERIENCE

### Undergraduate Researcher

#### Distributed Protocol Research Group

December 2019 – Present

- Benchmarking and visualizing the performance of popular machine learning frameworks such as PyTorch
- Researching possible optimizations in scheduling processes on GPU for machine learning applications

### Course Developer

#### University of Illinois at Urbana-Champaign

January 2019 – December 2019

- Developed a distributed and scalable grading system on Kubernetes through the use of mirror Git server and RabbitMQ
- Containerized legacy infrastructures using Docker and migrated them to a Kubernetes cluster
- Identified and submitted mitigation steps for several vulnerabilities such as privilege escalation, data exfiltration, and code injection

### Undergraduate Researcher

#### The Center for Exascale Simulation of Plasma-Coupled Combustion

May 2019 – December 2019

- Developed testing framework using C++, Python, and Bash Script that can dynamically generate driver files and run tests selectively, allowing faster testing and development
- Optimized the speed of parallel computation and I/O by implementing MPI cartesian topologies mapping that takes advantage of the principle of locality

## ACTIVITIES

### Member

#### SIGPwny (Special Interest Group for Security)

August 2018 – Present

- Writes various scripts such as Google calendar scraper for meeting reminders and IP checker to filter SSH connections to club's server
- Writes meeting slides and leads meetings to go over CTF challenges

### Understudy

#### Student Cluster Competition Team

September 2019 – December 2019

- Utilized Telegraf, Grafana, and InfluxDB to show real-time cluster's resource usage on Raspberry Pi

## PROJECTS

### Backend Team Lead

#### IoT Virtualization

August 2019 – Present

- Led a team of developers to create various API for the backend servers and databases
- Developed a backend server that asynchronously runs simulations of IoT devices in Docker containers

## SKILLS

### Programming:

C++ Python Java Kotlin  
HTML CSS JavaScript Go

### Tool / Framework:

Linux Git Docker Kubernetes  
RabbitMQ Burp Suite Vim tmux  
Make MPI

### Language:

English Indonesian

## COURSES

- CS 126: Software Design Studio
- CS 173: Discrete Structures
- CS 225: Data Structures
- CS 233: Computer Architecture
- CS 241: System Programming
- CS 357: Numerical Methods I
- CS 361: Probability & Statistics for CS
- CS 498: Internet of Things
- CS 397: Independent Study (High Performance Clusters)
- ECE 297: Independent Study (Web Application Security)