AHNAF SIDDIQI |

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A learner, with 2 years of experience, carrying an interest in the field of network security, system architecture, database, and embedded systems.

EDUCATION

Singapore University of Technology and Design   Class of 2016

Bachelor of Engineering with Honours majoring in Information Systems Technology and Design.
Specialization: Security and Communications, Artificial Intelligence.

SKILLS

Core - Python, C++, Docker, Docker Swarm, Docker-Compose, Git, Linux, GNU Make, Nginx.

Additional - Javascript, Java, HTML, CSS, GDB, PostgreSQL, OpenCV, Ruby-on-Rails, SQLite, Laravel, Vue, Flutter.

WORK EXPERIENCE

Software Engineer in MicroSec Pte. Ltd.   Dec'17 - Now

Lead engineer in the design, architecture, and development of a highly concurrent web service which is used in almost all customer projects. I have Sys. Admin and Intern management duties. I am also assisting in web development and customer support.

- Architecting and developing a multithreaded concurrent network server which implements an end to end TLS 1.3 equivalent security stack for ultra-low powered embedded devices. It supports various protocols: LoRaWAN, Bluetooth, NBIoT, etc.
- The web service implements Ellyptic Curve Crypto as the choice for Assymetric Key Exchange. AES CBC, AES GCM, and other crypto libraries are used for session keys.
- Database schema design to ensure non-duplicate data accross multiple instances of the network server.
- Development of continuous integration pipelines, managing cloud deployments of projects, ensuring high system availability and basic system administration.
- Design and implementation of customer requested features and business logic in our Web Stack.
- Supervision and management of interns to full time employees following companies operating procedure.
- Use Case driven feature and sprint planning following Agile Principles.

Tech Stack: C++, Python, Flask, SQLAlchemy, Hypothesis, Docker, Nginx, CI, Puppet, PostgreSQL, Vue, Angular, Valgrind, Wireshark, AWS EC2, Droplets.

Research Assistant in iTrust Research Center for CyberSecurity   Nov'16 - Oct'17

Common Industrial Protocol (CIP) is a realtime network protocol being used in Secure Water Treatment (SWaT) testbed at SUTD. I followed specifications to implement a concurrent server to be used in simulation and various research purposes.

- Analyzed and reconstructed high volume CIP packets of both TCP and UDP variants using wireshark.
- Designed application using TDD and SOLID principles of OOP.
- The library was used in a CaptureTheFlag competion in an international inter-university competition for Secure Cyber-Physical (Scy-Phy) Systems Week.
- Deployed and maintained a web challenge in Amazon EC2 for the competition.
- Analysed Networks for vulnerabilites in testbeds: SWat and EPIC.

Tech Stack: Python, Flask, Wireshark, LxC, EtherNet/IP.

Publication: A. Siddiqi, N. O. Tippenhauer, D. Mashima, and B. Chen, "On practical threat scenario testing in an electric power ics testbed," in Proceedings of the cyber-physical system security workshop (cpss), co-located with asiaccs, 2018.

Web Developer in Souschef   Oct'16 - Jan'17

Prototype, developed, and participated in the initial deployment of a configuration panel across mutliple remote machines.

- Learnt and developed JS based web service following TDD principles.

Tech Stack: Node, Python, Express.

Teaching Assistant in General Assembly   Aug - Sep'16

Assisted instructors to teach students the basics of programming, web development, and CLI magic.

- Taught Git, HTML, CSS, Javascript, and Express.
- Managed multiple tasks including grading programming tests and evaluating student projects.

Web Developer Intern in Tinkerbox Studios   May - Aug'15

Summer Internship where I developed business logic and implemented test cases of projects.

- Practiced Test Driven Development using Ruby-on-Rails.
- Worked on models, views, and controllers and wrote/refactored their new/old tests.
- Implemented simple front-end interactive pages.

Tech Stack: Rails, HTML, CSS, Heroku.

PROJECTS

Social Project for Children with Autism   Sep'16 - Nov'17

Special needs children may be able to excel in programming. The project involved research, user data collection, designing, and testing a new curriculum to teach children basic coding concepts.

- Analysing base performance by conducting several tests, surveys and measuring their memory and sequential task handling capability.
- Data classification and curriculum design in a fun and analogous manner which teaches core concepts of programming.
- Students who were able to partially communicate where able to perform all programming related tasks which involved recreating lego blocks from memory, reading and correctly recreating steps of visual code blocks, and finally solve difficult challenges with little to no assistance.

Stack: Edison Robot, Research.

Capstone Project - Interactive Animatronic Dragon   Jan - Aug'16

Established a network to transfer data between multiple sections of a prototype of an animatronic dragon which detects user movements in its peripherals to provide interactive feedback. The full project includes design and construction of mechanical, aesthetic, and user experience.

- Implemented an ad-hoc network with static IP for P2P connections between two RaspberryPi.
- Developed a state machine to categorize different out puts according to user inputs.
- Used Open CV to detect user movement to be used as inputs for the statemachine.
- Worked in a student team of 6 people from different technical tracks.

Tech Stack: Python, OpenCV.

ACTIVITIES

External Involvements - NUS XCTF 2016, Finalists for APEX Business-IT Global Case Challenge 2016, SG50 Hackathon 2015 Smart Nation, Secretary for University Photography Club.

Interests - Photography, Running, Non-Profit Social Events, Exploring Culture, CaptureTheFlag, Network Security, Physical Systems Security, Linux, Arch and Emacs.

Languages - English (Full Professional Proficiency), Bengali (Native).