Swanand Sawant

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EDUCATION

MS, Computer Science **May 2018**
George Mason University, Virginia

BE, Computer Engineering **May 2015**
University of Mumbai

SKILLS

Programming Languages: Java, JavaScript, C, C++, Python.
Database: MongoDB, SQL, Git.
Front End: HTML, CSS, BOOTSTRAP, SASS, jQuery, Angular, D3.
Frameworks: React.js, Node.js, Spring Boot.

WORK EXPERIENCE

Front end intern at IpserLab LLC. March 2019 – present

- Designed the UI and built front-end part of the web app that generates quiz for sales and marketing research.
- Developed using Bootstrap, AJAX, CSS, HTML and JavaScript.

ACADEMIC PROJECTS

Relay Attack Prevention In NFC-Credit Cards (GitHub)

- Emulated a classic relay attack on a sample contactless NFC payment system, using Raspberry Pi and NFC PN532 shield along with LIBNFC to scan an NFC card and relay it to another laptop over wifi via ssh.
- Conducted an analysis of transaction times for both genuine and counterfeit transactions and implemented an algorithm to detect the occurrence of an attack based on anomalous times.
- Mitigated the attack while also allowing for false positives by adding a second authentication method (PIN code) when an attack is suspected.

Real-Time Chat App (GitHub)

- Built a real-time chat web app with Node.js and Express.
- Implemented the backend with MongoDB and Socket.io for bi-directional communication between dozens of simultaneous chat sessions.

Sensory Data Gloves

- Built input glove for PC using flex sensors to track finger motion and accelerometer to track wrist movement, for use as a game controller.
- Implemented gesture recognition and calibration on Arduino that recognizes QWERTY keystrokes from sensors.

Computer Graphics Projects (GitHub)

- Gained hands-on experience with motion capture data, forward kinematics, Quaternion and Euler angle representations, key-frame interpolation and inverse kinematics.
- Developed real-time interactive 3D wireframe skeleton animation system GUI using OpenGL and Qt.
- Implemented OpenGL/GLSL shaders for rendering various material styles, including Phong, Lambert, normal mapping, and toon shader.
- Implemented interactive editor and curve generation algorithms for Bezier, Catmull-Rom and B-spline curves.