Sheshmani Yadav

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EDUCATION

Master's in Electrical and Computer Engineering, San Diego State University, San Diego, CA-92115, USA (**Aug 2018 - Dec 2020)**
Courses: Computer Data Networks, Embedded Operating System, Multimedia Wireless Networks, Machine Learning

Bachelors in Electronics Engineering, University of Mumbai, Mumbai - 400101, India (**Jun 2013 - Jun 2017)**
Courses: Computer Communication & Networks, Microcontrollers & Applications, Microprocessor & Peripherals

CORE COMPETENCIES

Programming Languages: C**,** C++, Python
Software: Network Simulator - 3 (ns3), MATLAB, Linux, Anaconda tools, Jupyter Notebook, Arduino IDE, mbed compiler, ARM Keil
Hardware: Arduino, Raspberry-Pi - 3B+, FRDM KL25Z, ARM Cortex M0+ / M3 microcontrollers, BLE device, Wi-Fi (esp 8266)
Networking Protocols: IEEE 802.11b/a/g/n/ax, TCP/IP, UDP, DNS, HTTP, DHCP, FDM, OFDM, ad hoc routing protocol

WORK EXPERIENCES

Research Assistant at *Wireless Technology Research Lab* **(Jun 2019 - Present)**
San Diego State University - San Diego, CA **|** C++, Python, Network Simulator (ns3)

- Improved **QoS** by introducing new features such as node coordinates, link lifetime with the neighboring nodes in the control header of the OLSR routing protocol.
- New fields in the control message header made the routing protocol more reliable and robust.
- Developed a multipath Dijkstra **Algorithm** in python to get an optimized node disjoint routes.
- Interfaced **python** script with a system call command in ns3 and perform routing of data packets on multiple disjoint paths.
- Implemented a source routing scheme by updating the IPv4 packet header structure of ns3.
- **Achieved low end-to-end delay, high data packet delivery ratio** than the original OLSR.

Embedded System Trainee **(Jun 2016 - Nov 2016)**
Eduvance, Mumbai - India **|** MBED, Arduino IDE

- Developed air mouse and level detector by using the onboard accelerometer, capacitive sensor **APIs of MBED.**
- Designed a mouse that alters its sensitivity with respect to the user input.
- Extending the **gesture-controlled USB mouse** to give it a wireless capability and trans-receiver pair.
- Implemented a sensor node that could get data from any connected sensor and transmit it over a Wi-Fi interface to a Spark fun Phant Server using a **Wi-Fi module.**
- Collected the data received by the WSN coordinator and multiple discrete nodes using a radio module and stored on the cloud.

PROJECTS

Comparative Analysis of Video Game Rating Prediction using Machine Learning approach **(Sep 2019 - Dec 2019)**

- Pre-processed and cleaned the raw dataset of video games sales obtained from https://www.kaggle.com
- Build **Linear Regression**, **Logistic Regression**, **Neural Network (using TensorFlow**), Random Forest models
- to predict video game ratings based on 13 different sets of features of the dataset.
- Trained the **Neural Network** with a fixed number of epochs to avoid over-fitting issues.

Real-Time voice to text converter **(Aug 2018 - Dec 2018)**

- Developed Autonomous **Real-Time** voice to text converter by using the Sound Pattern Recognition technique
- The generated analog values of different spoken words from an analog mic, and then mapped those generated analog value with those spoken words.
- Regenerated those words on the terminal by a similar process.
- **Achieved 80%** accuracy in the regeneration process.
- **Hardware:** Raspberry-Pi - 3B+

Socket Programming (TCP/IP) **(Nov 2018 - Dec 2018)**

- Created **TCP/IP socket** between server and client for exchanging data.
- Used **multithreading** to allow multiple users to connect a single server at the same time.

Universal Remote Control **(Aug 2016 - Apr 2017)**

- Designed and developed a device that could control all the IR remote based appliances.
- Based on the protocol of the receiver of the appliances, made it to transmits the IR signal through **IR LEDs**
- **Hardware:** Atmega (Arduino nano), **Bluetooth module,** IR transmitter, and current amplifier (Darlington pair)
- **Software:** Android application

CERTIFICATION

Summer Industrial Training: Embedded System and Internet of Things (IoT)

- **ARM University Program Training Course:** Embedded System Design and Programming
- **Cypress University Alliance Training Program:** Internet of Things (IoT)
- **Embedded System Programming:** ARM cortex M3/M4

PAPERS AND PUBLICATION

Universal Remote Control, published at viXra Citation number: 1704.0251 Latest version: v1 http://vixra.org/abs/1704.0251