Ujwal Bachiraju

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Education

- **University of California, San Diego - Jacobs School of Engineering**
  Master of Science in Computer Science — *September 2018 – April 2020*
- **IIT Delhi**
  Bachelor of Technology in Electrical Engineering; CGPA: 8.9/10.0 — *July 2012 – May 2016*

Programming Skills

- **Languages**: C++, Java, Python **Technologies**: Apache Kafka, Docker, Spark, Spring Boot, Git, Matlab

Experience

- **Samsung Research Institute Bangalore, India**
  Senior Software Engineer(Started as Software Engineer) — *June 2016 - July 2018*
  - **Adaptive Web Scraper(Published, Patent filed)**:
    - Co-Devised and programmed a novel algorithm in **Python** which uses **Machine Learning(Classification)** for extracting offer objects from a web page with unknown structure satisfying certain reasonable constraints
    - Trained a **Random Forest Classifier** for domain text classification and used it with the algorithm to extract relevant offers from Grabon.in website with an offer recall of 99% and specific attribute recall of 88%
    - Received **Samsung Citizen Award** for the project
  - **Group Notification Service**:
    - Developed a fault tolerant **backend** service for pushing rate limited notifications to large user groups(order of 500,000) of Samsung Pay over certain time periods every day; using **Spring Framework** in **Java**
    - Built a prototype using **Apache Kafka** for handling the service with peer-to-peer systems
  - **Samsung Pay Rewards**:
    - Built a **Java** library to interact with **Apache Kafka** for data collection from different Samsung Pay India modules
    - Involved in coordinating downstream usage of the library with 4 teams; and version compatibility management
    - Aided testing of the data pipeline and individual components by automating most parts with **bash scripting**
- **Samsung Research Institute Bangalore, India**
  Software Engineer Intern — *May 2015 – July 2015*
  - **Hand Gesture Recognition(Published)**:
    - Developed an algorithm to recognize dynamic hand gestures using the trajectory of the hand, with upto 95% accuracy
    - Implemented hand tracking using color detection and contour formation in **OpenCV, C++**

Projects

- **Occupancy Detection**: *IIT Delhi; UG Thesis; Supervisor: Dr. Seshan Srirangarajan* :
  - Implemented **Bayesian Network** and other classifiers in **C++** and **Matlab** to detect localized occupancy using data from PIR sensors. Got an accuracy of 83%, energy savings of around 12% in a closed office space
  - Set up an experimental test bed in a room for analyzing dependency of prediction accuracy on various types of sensors and their combinations; reached an accuracy of around 96% for the setup
- **Quoridor Bot**: *IIT Delhi, Artificial Intelligence Project* :
  - Implemented Minimax with alpha-beta pruning and TD learning in **C++** for creating a **bot** for Quoridor
  - Our bot won 1 of the 2 tournaments it participated in, competing against 60 other bots
- **Pocket Tank Shooting Game**: *IIT Delhi, Design Project* :
  - Implemented peer-to-peer networking protocol so as to impose host-independent gameplay
  - Used **OpenGL** for graphics and the game mechanics were tailored for peer-to-peer gameplay using unicast and multicast

Patents and Publications

- **Patent**: *Samsung* : Filed a patent on a Web Information Extraction Algorithm, in India
- **Publication**: *Samsung* : Presented work on Adaptive Web Scraper in IEEE ICMLA 2017
- **Publication**: *Samsung* : Presented work on Hand Gesture Recognition in IEEE ICCE-Asia 2017

Positions of Responsibility

- **Technical Secretary**: *Electrical Engineering Society, IIT Delhi* : Conducted workshops on working with microcontrollers