Abhianshu Singla

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EDUCATION

University of Central Florida — Orlando, FL

M.Sc. *in Computer Science (GPA: 4.0)* — *Aug. 2017 - Apr. 2019*

PEC University of Technology — Chandigarh, India

B.Eng. *in Computer Science (GPA: 3.9)* — *Aug. 2010 - May 2014*

WORK EXPERIENCE

University of Central Florida — Orlando, USA

Graduate Teaching Assistant — *Jan. 2018 - Dec. 2018*

- Responsible for assisting students and grading Java-based programming assignments for Enterprise Computing course taught by Dr. Mark Llewellyn

Samsung Research Institute India — Noida, India

Software Engineer — *Jun. 2014 - Jul. 2017*

- **Enterprise Billing Framework** – Handled framework of Enterprise Billing module to separate bill generation for personal and enterprise data usage
- **Mobile Device Management** – Facilitated support for various VPN vendors in Samsung Android devices under MDM/VPN team
- **Knox Framework** – Developed and commercialized Knox, a mobile enterprise security solution by Samsung
- **Mobile Enrollment** – Built Mobile Enrollment module to support normal enrollment of devices to the enterprise, bulk enrollment and enrollment through NFC

Playbuff Inc. — Chandigarh, India

App Developer Intern — *Mar. 2013 - Jun. 2013*

- **Multiplayer iOS game** – Developed an Online Multiplayer iOS game developed using C# and Unity Game Engine
- **Medical Android Application** – Programmed an Android Application to transmit medical records by NFC developed using Java and libNFC

µTrade Solutions — Chandigarh, India

Software Developer — *Jan. 2013 - Feb. 2013*

- Built a Database Automation Tool developed using C++ and PostgreSQL

TECHNICAL SKILLS

Languages: Python, Java, C, C++, SQL, Matlab, LaTeX

Libraries: TensorFlow, Keras, Scikit-learn, SciPy, OpenCV, nltk

Frameworks and Tools: ROS, Perforce, Quick Build, Eclipse, Android Studio, Android Networking API, Unity

PROJECTS

Non-blocking Unordered Lists — *Sep. 2018 - Nov. 2018*

- Implemented an advanced version of wait-free list along with lock-free list in addition to fine-grained and coarse-grained linked lists
- Modified the coarse-grained list to work as a Transactional List using Rochester Software Transaction Memory
- Lock-free List has the best run-time performance and only Transaction List provides the composability

Inexact Search using Burrows Wheeler Transform — *Oct. 2018 - Dec. 2018*

- Implemented Suffix Array, Longest Common Prefix and Burrows Wheeler Transform using Wavelet Trees
- Incorporated Backward Search Algorithm to search exact matches in $|P|log\sum$
- Implemented inexact search with time complexity $|\sum|^2|P|log\sum$

Driver's Behavior Cloning *July 2018*

- Designed a Deep Neural Network based on NVIDIA model to predict the steering angles of the vehicle
- Data Augmentation for handling sharp left and right turns, road surroundings and weather changes
- Autonomous Behavior tested on Udacity's Self-Driving Simulator developed in Unity

Q-Learning in a grid world *Feb. 2018 Mar. 2018*

- Designed a Reinforcement learning engine with deterministic and stochastic behavior in an interactive grid world GUI using pythons tkinter library

Multi-Sentiment Analysis *Feb. 2018 Mar. 2018*

- Classified emotions using Naïve Bayes, Maximum Entropy and SV Classifiers on ISEAR and IMDB movie dataset

Dynamic Path Planning *Feb. 2018 Apr. 2018*

- Developed and Validated A* Variant Algorithms - Forward A*, Lifelong Planning A*, Real-time Adaptive A*, Learning Real-time A* and D* Lite
- Implemented A-star path planning algorithm with different heuristic methods and costs
- Integrated Dynamic Path Planners with ROS

Object Classification *Sept. 2017 - Dec. 2017*

- Built a Food Classification of Food-101 data using k-means cluster, SVM and Random Forest classification methods and developed using sklearn libraries
- Classification of UCF Sports Action with Local features (HoG, Image Histogram), and Global features (Shape Model) as well as Deep Neural Net using Keras
- Digit recognition of MNIST dataset using Tensor Flow

Feature Extraction Techniques *Sept. 2017 - Dec. 2017*

- Implemented SIFT (Scale Invariant Feature Transform) feature extraction technique
- Accurately modeled Lucas Kanade Optical Flow, Canny Edge Detection, Harris and Susan Corner Detection Algorithms

Internet of Things Application *Sept. 2017 - Dec. 2017*

- Built a Remote Video Surveillance based on Raspberry-Pi using Amazon Web Services and a remote Host

Real-Time Traffic Mapping *Aug. 2013 - Apr. 2014*

- Designed an Android application for real-time traffic mapping through crowd-sourcing in collaboration with IIT Bombay
- Developed an algorithm to predict the arrival time of local buses based on congestion, stops and speeds
- Analyzed the sensitivity levels of sensors like accelerometer, gyroscope for various Android devices

Cryptography - Security Analysis *Jan. 2014 - Apr. 2014*

- Responsible for Privacy and Security Analysis of Android Applications and detection of duplicate applications