Siddharth Sharma

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WORK EXPERIENCE

Full Stack Developer, Office 365, Microsoft, Dublin *[May 2016 – present]*

Enterprise Xcceleration:

- Currently working on a cross organisational effort to deliver a high scale cloud solution that will help enterprises remove blockers, accelerate deployments of Office builds and view real-time insights on health of their assets
- Piloted and shipped critical tooling that has unblocked large Tier 1 enterprises (over 800 downloads and 130 unique enterprises) in the space of Office Addin and Macro compatibility
- Created a tool to automate the generation and scheduling of jobs to cook the raw data streams into more meaningful activity streams. Thus, reducing the developer time by 60%

Consumer Account Management: Redesigned the Office Subscription and Perpetual management portal

- Transformed the legacy website into a Progressive Web Application using a new Front-end tech stack. Improved Page Load performance by 85% which resulted in a 30% increase in customer traffic
- Setup the infrastructure for local development and production builds. This reduced the developer time by 90%
- Implemented: custom lightweight Router, client-side telemetry framework, multi-tab state synchronisation, etc.
- Analysed user feedback & A/B tested features which resulted in 4.5% increase in subscription renewal rates and 40% increase in user satisfaction
- Worked jointly with the Office Licensing and Universal Store teams to migrate the consumers to a new backend platform for subscription sharing, all the while ensuring a 99.99% QoS

Electronics Design and Development Engineer, Avalon Sciences Ltd, UK *[Sept 2015 – Feb 2016]*

- Developed the architecture, RTL logic and test benches for the Telemetry Adapter System using VHDL
- Designed and developed an Automated Test Equipment that reduced the test time for various elements of the Seismic Data Acquisition System by 90%
- Increased the average device test coverage by 40%, thus achieving 100% test coverage in most cases

Embedded Software Engineering Intern, Avalon Sciences Ltd, UK *[Jun – Sept 2014]*

- Developed a Tool Test Card (TTC) to test the Data Formatting Unit and Seismic Receivers
- Developed kernel device drivers and firmware for the SPI and I2C busses on the GSP and µC on TTC
- Implemented an elegant method of flow control based on fixed packet sizes

EDUCATION

Self-Driving Car Nanodegree, Udacity *[Sept, 2017 – Present]*

- Term 1 (completed): Deep Learning using TensorFlow & Keras, and Computer Vision using OpenCV
- Term 2 (ongoing): Sensor Fusion, Localisation & Control using C++

Foundations of AI, Udacity *[Jun – Sept, 2017]*

- Key modules: Constraint Satisfaction, Logic and Reasoning, Planning, Probabilistic Inference using Bayesian Nets, Probabilistic Reasoning over Time using Hidden Markov Models

Machine Learning, Stanford University, Coursera *[Jun – Sept, 2017]*

- Key modules: Regression, Classification, Neural Networks, Model tuning techniques, Support Vector Machines, Principal Component Analysis and Clustering

Electronics and Communications Engineering (MEng) – University of Bristol, UK *[2011 – 2015]*

- 1st Class (overall), 75% , **Specialisation:** Advanced Mobile Radio Techniques & Image and Video Coding

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SKILLS

Proficient in:

- *Deep Learning:* Python, Tensorflow, Keras, Scikit-Learn, NumPy, Matplotlib, Pandas
- Computer Vision: OpenCV, Scikit-Image
- *Web*: C#, Javascript, Typescript, React.js, Redux, Node.js, Webpack, ASP.NET MVC, ASP.NET Web API

Experience with:

- C++, Matlab, SQL, Hadoop

HOBBY PROJECTS

Vehicle Detection & Tracking

- Created a pipeline to detect and track vehicles in a video using OpenCV, Histogram of Oriented Gradients (HOG) feature descriptor and Support Vector Machines
- Implemented a novel multiscale sliding windows method to search for detections and leveraged heatmaps to combine overlapping detections and remove false positives

Advanced Lane Lines Detection

- Developed an advanced lane-finding algorithm using distortion correction, image rectification, color transforms, and gradient thresholding. Identified lane curvature and vehicle displacement
- Implemented a novel solution to overcome environmental challenges such as shadows and pavement changes

Behavioural Cloning

- Built and trained a Convolutional Neural Network for end-to-end driving in a simulator, using TensorFlow & Keras
- Used optimisation techniques such as Dropout and Regularisation to generalize the network for driving on multiple tracks

Traffic Sign Classifier

- Built and trained a Convolutional Neural Network to classify traffic signs, using TensorFlow
- Performed data augmentation, image pre-processing and validation to guard against overfitting

Self Driving RC Car

- Modified a RC car to handle: self-driving on the track, stop sign and traffic light detection, front collision avoidance and distance measurement using monocular vision
- Technologies: OpenCV, Neural Networks, Haar feature based cascade classifiers, Python and NumPy

Miniflow

- Implemented a mini neural network library from scratch with the goal of understanding backpropagation and computational graphs. Trained a 2 layer neural network using Miniflow to predict the Boston housing prices

INTERESTS & ACHIEVEMENTS

- As committee member of the Garage Ireland, a community of Microsoft makers, I introduced IoT and electronics. I also organised and lead a version of my *Self Driving RC Car* project with 6 Garage interns
- Presented multiple talks on Machine Learning, Deep Learning and Frontend development at Microsoft, Ireland
- Trinity College Industry Engagement Project: Mentoring a group of 8 2nd/3rd year university students with the aim of getting them excited to learn about - Microsoft technologies and software engineering in general