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 asset
- Leveraging unsupervised machine learning algorithms to create an in-browser tool for visualising high dimensional datasets
- Presently setting up the UX and Service-side Automation framework
- Lead a virtual team of 3 developers to develop the E2E experiences for Office assets related features
- 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
- Developed a module for asynchronously loading React components with dynamic imports. This enabled a 30% reduction in the initial load for the current project, and it's also being widely adopted by teams in Office 365

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

- First to introduce a new Front-End tech stack (React.js/Redux/Webpack) across Office 365, Dublin. Transformed the legacy website (Asp.NET MVC) into a Progressive Web Application using the aforementioned stack
- Setup the infrastructure for local development and production builds. This reduced the developer time by 90%
- Improved Page Load performance by 85% which resulted in a 30% increase in customer traffic
- Implemented: a custom lightweight Router, client-side telemetry framework, multiple-tab state synchronisation
- Analysed user feedback & A/B tested features which resulted in 4.5% increase in subscription renewal rates and 40% increase in user satisfaction

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

EDUCATION

Deep Learning (Term 1), Fast.ai *[Apr, 2018 – Present]*

- Key modules: Embeddings, Recurrent NNs, Convolutional NNs, Computational Linear Algebra

Self-Driving Car Nanodegree, Udacity *[Oct, 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, SVMs, 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, Fusebox, 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

Visualising Gradient Descent Optimisation Algorithms

- Created a Jupyter notebook to visualise different gradient descent optimisation techniques

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

- Presented multiple talks on Machine Learning, Deep Learning and Frontend development at Microsoft, Ireland
- Trinity College Industry Engagement Project: Mentoring a group of 5 2nd/3rd year university students with the aim of getting them excited to learn about - Microsoft technologies and software engineering in general