Siddharth Sharma

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WORK EXPERIENCE

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

Application Compatibility:

- Developed a tool that collects add-in and VBA macro information across an enterprise & provides a quantitative analysis on their readiness to upgrade to the latest Office 365 builds
- Implemented hierarchical document clustering for addin health classification
- Automated the generation and scheduling of jobs to cook the raw data streams into more meaningful activity streams. Thus, reducing the developer time by 70%

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

- Setup the infrastructure for local dev development and production builds using a new Front-end tech stack. This reduced the developer time by 90%
- Implemented: a custom light-weight 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
- 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 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

SDE Intern (iOS), Hughes Systique Corporation, India *[Aug - Sept 2013]*

- Designed, developed and tested GoSuraksheit - a women safety app for iOS

EDUCATION

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

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

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

- Currently in Term 1 which focuses on Deep Learning using TensorFlow and Computer Vision using OpenCV

Foundations of AI, Udacity *[May - Aug, 2017]*

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

Machine Learning, Stanford University, Coursera *[Feb - Apr, 2017]*

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

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SKILLS

Proficient in:

- *Web Tech*nologies: C#, Javascript, Typescript, React.js, Redux, Node.js, Webpack, Fusebox
- AI or Scripting: Python

Experience with:

- OpenCV, NumPy, Pandas, Scikit-Learn, TensorFlow, Matlab, SQL, Hadoop, HBase, C++

HOBBY PROJECTS

Sign Language Recogniser (ongoing)

- Built a system comprising of Hidden Markov Models that can recognize words communicated using the American Sign Language
- Implemented and analysed different model selection techniques such as Discriminative Information Criterion, Bayesian Information Criterion and k-folds Cross Validation
- Achieved an error rate of 42.6%. Currently leveraging Statistical Language Models to improve the performance.

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, NumPy

Fifteen Sliding Block Puzzle

- Created an agent to solve the Fifteen Sliding Block Puzzle using various search techniques, namely- BFS, DFS, ID-DFS, UCS, Greedy Best First Search and A* Search
- Compared the performance of A* and Greedy Search with multiple heuristics

Isolation (ongoing)

- Created an adversarial search AI agent to play the game of Isolation. The agent employs Minimax search algorithm with Alpha-Beta Pruning and Iterative Deepening
- Currently testing the performance of the agent with custom heuristics at different stages of the game, exploiting symmetry and move reordering

Sudoku

- Created an AI agent to solve Sudokus using constraint propagation and search techniques
- Taught the agent to solve Diagonal Sudokus and use the Naked Twins advanced strategy