Sourabh Anand

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Professional Summary

- 4+ years of extensive software development experience in multiple domains
- Worked on development of **Deep Learning** based image recognition systems for embedded platforms
- Have successfully applied Machine Learning techniques to predict *strategies* which will help customer designs meet timing constraints on Xilinx's FPGAs
- Experience in working with large datasets and using Python libraries such as **pandas, NumPy, scipy** etc.
- Pursuing part-time **M.Tech** in **Data Science** from IIT, Hyderabad

Skills

- **Languages:** C, C++, Python, UNIX Shell Scripting
- **Web Technologies:** Familiar with HTML5, CSS/CSS3, PHP, JavaScript, jQuery, Bootstrap
- **Areas of Interest:** Data Science, Machine Learning, Object Oriented Paradigm, Algorithms
- **Libraries/Frameworks:** NumPy, pandas, scikit-learn, Caffe, Tensorflow, Darknet YOLO
- **Miscellaneous:** Qt, PyQt, Mercurial, Git, Perforce

Work Experience

- **Xilinx, Inc.** — Hyderabad, Telangana
  Software Engineer 2 — *Dec, 2016 - Present*
  - Develop a **Random Forest based Machine Learning model** to show user the strategies to run that will help customer designs meet timing constraints.
  - Developed **visualization/reporting** tools to aid debugging of wrong predictions by ML model.
  - Work on development of Device-Model verification systems for FPGA(Field-Programmable Gate Arrays)
  - Developing a *Chip-Pruner*: A tool that helps in scalable simulation of an FPGA Netlist by pruning out unused portion based on software implementation of user design
  - Work on reducing memory and runtime of the tool for efficiently running large user designs
  - Add additional features in the tool to support Xilinx's next generation FPGA
  - Debug and fix bugs as and when uncovered by the design and verification team

  Technologies: **Python, Machine Learning, scikit-learn, scipy, pandas, C++, STL, Boost**

- **MulticoreWare, Inc.** — Chennai, Tamil Nadu
  Senior Software Engineer — *June, 2016 - Nov, 2016*

  Deep Learning based Real Time Vehicle Detection System
  - Developed a Real time Vehicle Detection System for Cadence VP5 DSP platform
  - Designed and trained a light-weight **Convolutional Neural Network** (CNN) for vehicle classification considering memory and compute capability constraints
  - Read research papers and trained smaller models using **network pruning and compression**
  - Implemented *Forward Propagation* phase of CNN for vehicle detection in C and Cadence SIMD intrinsics
  - Redesigned the convolution kernels with better data layout for max SIMD width utilization

  Technologies: **Neural Networks, Deep Learning, Darknet YOLO**

MulticoreWare, Inc. Chennai, Tamil Nadu
Software Engineer *July, 2014 - June, 2016*

Deep Learning based Image Tagging Tool

- Developed an Image Tagging software - Labeling Tool for internal data tagging team
- Designed all the modules and overall workflow of application and wrote design document for the same
- Customized and enhanced the application making it superfast with exceptional features of **automatic annotation using CNN** (Convolutional Neural Networks)
- Used R-CNN and Darknet YOLO based models for automatic annotation of images and integrated the same to the appllication
- Wrote backend MySQL queries for storing and retrieving user information and other statistical data
- Designed UI prototypes of the application using mockup tools
- Added customizable shortcuts to the application for easy and faster usage

Technologies: **Neural Networks, R-CNN, Darknet, Python, PyQt, MySQL**

Education

- **Indian Institute of Technology** Hyderabad, Telangana
  M.Tech in Data Science *Aug, 2018 - Present*
  - Part-Time classes
- **Vellore Institute of Technology** Vellore, Tamil nadu
  B.Tech in Computer Science and Engineering *July, 2010 - May, 2014*
  - CGPA: 9.03/10
- **Chinmaya Vidyalaya** Bokaro, Jharkhand
  12th, PCM *July, 2007 - May, 2009*
  - Marks: 87.2%
- **Sido Kanhu High School** Dumka, Jharkhand
  10th *May, 2007*
  - Marks: 91.8%