

Akshay Tondak

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SUMMARY STATEMENT

Software Developer with **3+ years of industry experience** in designing, coding and maintaining large scale softwares primarily in C++/C and Python in the Electronic Design and Automation (EDA) industry. Currently researching the fields of **Machine Learning and Computer Vision** through multiple courses and looking for software roles in overlapping fields of Vision, Robotics and Data-Science in ML, which leverage my theoretical knowledge and end-to-end product life-cycle expertise.

EDUCATION

University of Michigan, Ann Arbor — GPA: 3.7/4 August 2021 – Present
MS, in Electrical Engineering and Computer Science — Image processing and Machine Learning Michigan, US

- Relevant Coursework: Computational Data Science and Machine Learning Lab (EECS-605), CSE Machine Learning (EECS-545), Matrix Methods in Machine Learning (EECS-551), Mobile Robotics (EECS-568), Analysis of Social Networks (EECS-544)

Graduate Grader — Graded courses EECS-545 (Machine Learning), EECS-216 (Signals and Systems)

Netaji Subhas Institute of Technology, Delhi University — GPA: 8.10/10 June. 2014 – May 2018
Bachelor of Engineering in Instrumentation and Control Engineering New Delhi, India

- Relevant Coursework: Advanced Data Structures and Algorithms, Artificial Intelligence, Digital Electronics, Control Systems

EXPERIENCE

Mentor Graphics, a Siemens Business July 2018 – July 2021
Senior Member Technical Staff, Analog Mixed Signals division (Team Symphony) Noida, India

- Successfully delivered more than 15 projects across multiple verticals of the tool and resolved more than 150 bugs. Journeyed the growth of symphony from 20 to more than 100 customers in the chip verification industry.
- Holistically enhanced Symphony's data storage mechanism by implementing a **Hash based memory efficient database** for proprietary data pushed and queried by multiple clients. Libraries used: Boost with C++, STL, Spice Programming Interface (SPI)
- Wrote from scratch, the boundary element placement algorithm on hierarchical multi-child tree structures to assist analog and digital value transfers using Verilog Programming Interface APIs. Customers Catered: **Silicon Labs, NXP Semiconductors, SONY**.
- Enabled tool's users to write out of module references (OOMRs) in their mixed signals designs by supporting hierarchically referenced variables in digital net-list. Owned the complete **architectural modeling and unit testing**.

Pasosync Analytics Dec. 2017 – Feb 2018
Software Development Intern — A robotic implementation to study limb movements New Delhi, India

- Implemented serial communication between a 3-axis MEMS accelerometer sensors and ESP wifi communication units using a **raspberrypi**. Environment of implementation: Arduino-IDE, Linux
- Built the data communication and visualization framework from scratch within ESPs using MQ Telemetry Transport (MQTT) data transfer protocol. Presented the visualization of live streamed data through mosquitto MQTT broker.

Tellmate Helper May. 2017 – July 2017
Software Development Intern — A physical hardware product for blind people Jaipur, India

- Entirely developed a web API using AWS's Lambda cloud computation and S3 bucket. Used Amazon's rekognition API along with Tesseract open-source optical character recognition (OCR) libraries to create a real-time object detection and text-to-speech pipeline.
- Pitched the product along with the founder, CEO for funding rounds in Microsoft's accessibility summit and the National 'India innovates challenge' in front of a panel of 5 judges and an audience of more than 100 people.

PROJECTS

Co-tuning for Transfer Learning Fall 2021
• Improved the object detection accuracy by 5% in a novel dataset of Trashcan (TACO) using a ResNet backbone and a probabilistic relationship modeler between source and target categories. Libraries used: Pytorch, Python, Pandas, Numpy — Link : co-tuning

Transfer learning based CNN for dog breed identification Fall 2021
• Improved the classification accuracy by 4% using a pre-trained transfer learning model based on ResNet.
• Pre-processed the skewed data for ideal training. Implemented a deep Neural Network in Pytorch and contrasted training and testing accuracy between standard DNN and transfer learning based DNN

Image enhancement for corrective optical character recognition Winter 2018
• Implemented in a team of 3 an image de-noising algorithm using Convolutional Neural Networks. Implemented Region Of Interest (ROI) based image extraction and achieved an accuracy of >95% on novel noisy images.

TECHNICAL SKILLS

- **Programming Languages:** C++/C, Python, Julia, Verilog, Verilog-AMS, VHDL, Perl
- **Tools and Frameworks:** Pytorch, Numpy, Git, Perforce, Jenkins, AWS, GDB, Vim, ArduinoIDE
- **Softwares:** QuestaSim, MATLAB, Eclipse IDE, Jupyter for python/Julia

WRITTEN REPORT WORK

- A Review of Modern Instance Segmentation Techniques, Bayesian Persuasion: A Game-Theoretic Overview