Agastya Seth

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SKILLS

PROGRAMMING

- Python •C/C++
- R • MATLAB/OCTAVE
- Perl • Verilog HDL
- JavaScript

SOFTWARE

- Jupyter • Visual Studio (C/C++)
- MEAN Stack • AWS
- Git • JIRA (Agile Dev)
- Android Studio
- RStudio • MATLAB (Simulink)
- Xilinks Vivado (HDL)
- Cadence Virtuoso
- Arduino IDE

DATA SCIENCE

MACHINE LEARNING

- SVMs • Regression
- Random Forest
- Model Regularization
- Bayesian Uncertainty

DEEP LEARNING

- Convolutional Neural Networks
- Recurrent Neural Networks
- OpenCV • TensorFlow
- Keras • PyTorch • Caffe2

EDUCATION

SHIV NADAR UNIVERSITY

Bachelors in Technology
Electronics and Communication
Minor in Mathematics
Cum. GPA: 7.95 / 10.0
August 2016-Present | UP, India

STANFORD UNIVERSITY

Summer Semester
Data Science | Technology Entrepreneurship
Cum. GPA: 4.133/4.3
June 2018 - August 2018
Stanford, CA

DELHI PUBLIC SCHOOL

High School
2016 | Class XII: 95%
Noida, UP

EXPERIENCE

CADENCE DESIGN SYSTEMS | Software Engineering R&D Intern

August 2020 - Present | Noida, UP

- Working in the software engineering (R&D) team for Quantus Parasitic Extraction tool.
- Responsible for feature enhancements and bug fixes for various libraries.
- Working on requests on memory and clock based profiling using Valgrind and Sunstudio Collect tools.

Stack used: *C++, Qt Creator, Perforce Project Management, Various Internal Tools*

LIQVID ENGLISH EDGE <> SNU | Data Science Consultant

August 2020 - Present | Noida, UP

- Heading the research group led by Prof. Rajeev Kumar working on an industry project with LiqVid English Edge
- Working on building AI-based solutions for English learning using the SOTA deep language modeling architectures.
- Currently working on novel approaches for Automated Essay Assessment models using BERT Sentence Embeddings with deep models and handcrafted features.

VISENZE | Data Science Intern

January 2020 - July 2020 | Singapore

- Was responsible for sourcing datasets, training models, model optimizations, and deployment for various projects undertaken.
- Worked on improving fashion attributes models using various dataset cleaning and visualization techniques, model optimizations and hyperparameter tuning.
- Worked on building classification models for various fashion accessories as an extension to ViSenze's one of the biggest tagging models - GPC (General Product Category). Also worked on view angle classification models for various fashion products.
- Built various pipelining and workflow scripts for internal tools, including web scraping scripts to source training images using Selenium and BS4.

Stack used: *JupyterLab, PyTorch, OpenCV, Selenium, BS4, Docker, ONNX, Jenkins, JIRA*

VI DIMENSIONS | Computer Vision Intern

May 2019 - July 2019 | Singapore

- Explored various background learning/subtraction models for real-time anomaly detection.
- Created object detection model based on Faster-RCNN for detecting persons and bags in surveillance camera feeds.
- Built a background segmentation model using Hough Transform.

Stack used: *OpenCV, TensorFlow, Keras*

KEY COURSES

UNDERGRADUATE

Analog Electronics
Applied Machine Learning
Communication Networks
Control Systems
Data Structures
Data Mining and Applications
Data Analytics in Societal Applications
Deep Learning
Digital Communication
Digital Electronics
Digital Signal Processing
Embedded Systems Hardware
Graph Signal Processing
Intro. to Robotics
Linear Algebra
Machine Learning in R
Multivariate Calculus
Numerical Analysis
Optimization I
Probability & Statistics
Semiconductor Devices
Signals and Systems
VLSI Technology and Design

MOOCs

• Machine Learning | Coursera, Stanford University

• A to Z Machine Learning | Udemy

INTERESTS

Computer Vision
DLT
Technology Entrepreneurship
Machine Learning / Deep Learning
Robotics
VR / AR
Design
UX/UI
Human Cognition
EDA
Sustainable Development
Music Composition

BISQUARE SYSTEMS | IoT Intern

May 2017 – July 2017 | Noida, UP

- Designed **an ESP8266 WiFi microcontroller-based IoT module** for an end-to-end IoT platform.
- Designed a mood-light and an IR remote-control module based on the module.
- Created AWS Lambda based backend for product registration, control and monitoring, and collected data for big-data analytics.

Stack used: *Cadence Allegro*, *Arduino IDE (C)*, *AWS Lambda*, *Node.js*, *RestAPI*, *MongoDB*

PROJECTS

SKIN SEGMENTATION AND MELANOMA CLASSIFICATION | Deep Learning Course Project

August 2019 – December 2019 | Shiv Nadar University, India

- Explored and evaluated various state-of-the-art deep learning techniques for skin segmentation. (under the guidance of Dr. Niteesh Sahni)
- Focused on building an explainable model to be able to explain the diagnosis by using various XAI algorithms like GradCam++

Stack used: *TensorFlow*, *Keras*, *TensorFlow Probability*

ANALOG VLSI IMPLEMENTATION OF SUPPORT VECTOR MACHINE | VLSI Course Project

January 2019 – April 2019 | Shiv Nadar University, India

- Analog VLSI approach to implementing projection neural networks adapted for support vector machine with radial-basis function (RBF) kernel.
- Validated and performed characteristic simulations for the same on Cadence Virtuoso.

Stack used: *Cadence Virtuoso*

SELF BALANCING BIKE | Embedded Systems Course Project

January 2019 – April 2019 | Shiv Nadar University, India

- Built a prototype of a self-balancing bike based on the STM32F303RE microcontroller.
- Successfully integrated connections (I2C) with various accelerometer/gyro sensors (MPU6050 etc.)
- Were able to demonstrate the balancing mechanism - flywheel rotation was controlled with PID via the sensor tilt angles.

Stack used: *Keil µVision (C/C++)*

SILICON VALLEY INNOVATION ACADEMY

June 2018 – August 2018 | Stanford, CA

- Conceptualized a solution to make consumer product production lifecycle more transparent to achieve SDG Goal #12, using DLT.
- Conceptualized a green-score for consumer products based on their ecological footprint the product development lifecycle.
- Developed a platform for users to track their carbon footprint wrt. their daily consumption (electricity, gas, water, products etc.)

Stack used: *Android Studio*, *Etherium*, *Node.js*

RNBIP | Single Bus Processor Architecture

August 2017 – August 2018 | Shiv Nadar University, India

- Built an 8-Bit Single Bus Processor Architecture using Verilog HDL synthesis, and successfully flashed it on Xilinx Artix FPGA (under the guidance of Dr. R.N. Biswas).
- Explored possibilities for building a micro-controller based on the processor - building a compiler and ports for the same.

Stack used: *Xilinx Vivado (Verilog HDL)*

LINKS

Github:// **agastyaseth**
LinkedIn:// **agastyaseth**
Twitter:// **@agastya_seth**
SoundCloud:// **agastyaseth**
Sculpture Gallery

SMART DOOR | IoT Course Project
December 2017 | Shiv Nadar University, India

- Built a smart-door solution using a Raspberry Pi to remotely stream live video stream outside the door, and lock/unlock the door.
- Used OpenCV to detect human presence in the video frame to trigger push notification.

Stack used: *Node.js, Flask (Python), OpenCV (C/C++)*

RESTAURANT DEMOGRAPHICS ANALYTICS | Data Analytics Course Project
December 2017 | Shiv Nadar University, India

- Predicted the success/rating of a new restaurant given various parameters and recommended the optimal location, costs, cuisines etc. using various clustering algorithms.
- Visualized trends among various locations based on price ranges and food habits in order to curate and cater for different demographics.

SEQUENCE-TO-SEQUENCE ABSTRACTIVE TEXT SUMMARIZATION | Personal Project
December 2018 | Shiv Nadar University, India

- Implemented a sequence-to-sequence RNN model for abstractive text summarization according to **this paper.**
- Improved the above model by using pointer-generator network in accordance to **this paper.**

FACE DETECTION USING EIGENFACES | Linear Algebra Project
May 2017 | Shiv Nadar University, India

- Implemented a face detection model using eigenfaces method.
- In the process, implemented mathematical transforms using Matlab, without libraries.

ACHIEVEMENTS

GOOGLE SCIENCE FAIR 2014 | Regional Finalist
September 2014 | India

- Built an Android app to empower farmers with real-time crop prices.
- **Idiot-proof UI** to enable illiterate farmers to obtain location-pertinent crop information using TTS in the vernacular language.

Stack used: *Android Studio (Java), Google TTS, HTML (Parsing)*

SMART INDIA HACKATHON 2019 - HARDWARE | Winner
July 2019 | India

- Built a solution for Tata Motors to mitigate **range anxiety** in electric vehicles.
- Developed algorithms to predict range of an EV and optimize the same.
- **Dashboard** to send driver pertinent notifications for optimization, and route navigation.

Stack used: *Simulink, Flask (Python)*

TRINITY GUILDHALL LEVEL 5 | Electronic Keyboard
May 2014 | Trinity College, London

SOCIETIES

ROBOYANTRIKI | Robotics Society of SNU
Working Committee | September 2016 - present

- Conducted various intra-university workshops on Arduino, IoT etc.
- Worked on an affordable blind-aid robot using Arduino and various sensors.

SNUPHORIA | Music Society of SNU
Working Committee | September 2016 - present

- Conducted piano lessons for university students through Student Mentorship Program (SMP).
- Worked with the marketing team to promote club awareness.

REFERENCES

MR. RAMENDRA BAONI | CEO, Bisquare Systems
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