Agastya Seth

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SKILLS

PROGRAMMING

- Python • R
- MATLAB/OCTAVE
- C/C++ • Verilog HDL
- Java • JavaScript (Node.js)

DEEP LEARNING

- OpenCV • TensorFlow • Keras
- PyTorch • Caffe

MACHINE LEARNING

- SVMs • Regression
- Random Forest
- Regluatization (Model Selection)
- CNNs • RNNs

SOFTWARE

- RStudio • MATLAB (Simulink)
- Jupyter • Visual Studio (C/C++)
- Xilinks Vivado (HDL)
- Cadence Virtuoso
- Arduino IDE • Android Studio
- Amazon Web Services
- Git and Github

EDUCATION

SHIV NADAR UNIVERSITY
Bachelors in Technology
Electronics and Communication
Minor in Mathematics
Cum. GPA: 7.92 / 10.0
August 2016-Present | UP, India

STANFORD UNIVERSITY
Summer Semester
Data Science | Technology Entrepreneurship
Cum. GPA: 9.5 / 10.0
June 2018 - August 2018
Stanford, CA

DELHI PUBLIC SCHOOL
High School
2016 | Percentage: 95%
Noida, UP

EXPERIENCE

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.

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 designed module.
- Created AWS Lambda based backend for product registration, control and monitoring, and collected data for big-data analytics.

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 Distributed Ledger Technology (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.)

BETTER WORLD | Co-Founder, CTO
June 2018 – August 2018 | Technology Entrepreneurship Course
Stanford, CA

- Built a business plan for a DLT-based charity app as part of the Technology Entrepreneurship course (E145) at Stanford.
- Conceptualized a novel social platform to gamify the process of donation, which encouraged users to donate with a leaderboard and rewards.
- Conceptualized an ethereum-based blockchain solution for better security and transparency for the transactions and donations.

PROJECTS

MASSIVE MIMO CHANNEL ESTIMATION | Major Project - I
August 2019 – Present | Shiv Nadar University, India

- Currently working on exploring various deep learning techniques for Massive MIMO channel estimation to minimize pilot contamination and channel noise (under the guidance of Prof. Vijay Kumar Chakka)
- Explored a DIP-based (Deep Image Prior) DNN architecture for denoising the received signal (Balevi et al)

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 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

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.

LIFI - IEEE 802.15.7 SCHEMES ON VLC | Digital Communication Course Project

January 2019 – April 2019 | Shiv Nadar University, India

- Explored communication usinf LiFi based on the latest IEEE 802.15.7 modulation schemes.
- Verified MATLAB simulations through IR receiver set-up using Arduino.

WORD PREDICTOR USING RNN | Data Mining Course Project

December 2018 | Shiv Nadar University, India

- Built an RNN model (without libraries) to predict the next set of characters given a set of words as inputs (trained on any given book).
- Visualized the back-propogation in time and loss function wrt. the weights.

SEQUENCE-TO-SEQUENCE ABSTRACTIVE TEXT SUMMARIZATION | Personal Project

December 2018

- 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.**

RESTAURANT DEMOGRAPHICS ANALYTICS | Data Analytics Course Project

December 2017 | Shiv Nadar University, India

- Using K-means clustering and other manipulations, predicted the success (rating) of a new restaurant given various parameters like location, cuisines, price range etc.
- The model further recommended the optimal location, costs, cuisines etc. required to build a successful restaurant.
- We further visualized trends among various locations based on price ranges and food habits in order to curate and cater for different demographics.

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.

RNBIP | Single Bus Processor Architecture

August 2017 – August 2018 | Shiv Nadar University, India

- Built an 8-Bit Single Bus Processor Architecture using 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.

INTERESTS

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

LINKS

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

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.

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.

TRINITY GUILDHALL LEVEL 5 | Electronic Keyboard

May 2014 | Trinity College, London

SOCIETIES

ROBOYANTRIKI | Robotics Society

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

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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