

# 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
- Regularization (Model Selection)
- CNNs • RNNs

### SOFTWARE

- RStudio • MATLAB (Simulink)
- Jupyter • Visual Studio (C/C++)
- Xilinx 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** to put to use in various IoT solutions.
- Designed a mood-light and IR remote control solutions based on the designed module.
- Created AWS Lambda based backend for the smart light solution for remote control of lights.

### 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.)

## 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) 

### 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. 

## 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

### LIFI - IEEE 802.15.7 SCHEMES ON VLC | DIGITAL COMMUNICATION COURSE PROJECT

January 2019 – April 2019 | Shiv Nadar University, India

- Explored communication using 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-propagation 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.

### 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. [↗](#)

## 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 [↗](#)

## 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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### DR. ROBERTO MARIANI | CTO, VI DIMENSIONS

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