

# AMAN AGARWAL

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## EDUCATION

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### Institute of Technology, Nirma University

*Bachelor of Technology in Computer Engineering - GPA: 8.61/10*

Aug 2015 - May 2019

*Ahmedabad, India*

## WORK EXPERIENCE

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### HSBC Software Development Ltd.

*Software Engineer*

Jul 2019 - Present

*Pune, India*

- Development of the HSBC mobile banking application on the Android platform and providing support to major countries including the UK, India, UAE, HK, China, and other Asian countries.
- Integration and end-to-end delivery of new authentication features for quick and easy access to the app.
- Technical lead of a 6-member team for HSBC global hackathon spread across the UK, China, HK, Poland, and India. Won the **Most Innovative Idea** award among 38 teams.

### Intel Corporation

*Software Innovator of AI (non-profit)*

Jun 2019 - Present

- Developed image segmentation algorithms on Intel DevCloud and optimized them for edge devices.
- Worked on Intel technologies and published articles on their applications in deep learning based systems.
- Talked about the concepts of machine learning at universities under the Innovator program.

### Government of India

*Deep Learning Engineer*

Jan 2019 - Jul 2019

*New Delhi, India*

- Developed solutions using temporal satellite images for object detection and segmentation using C.
- A complete production-ready solution was architected on AWS to provide real-time predictions.

## OTHER EXPERIENCE

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### Nvidia DLI Workshop

*Teaching Assistant*

Apr 2019

*Hyderabad, India*

- Taught the subjects of computer vision, deep learning for multiple data types, and CUDA programming under Dr. Priyanka Sharma at Mahindra École Centrale, Hyderabad, India.
- The audience included professors and students from different engineering fields.

## PUBLICATIONS

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- **Aman A.**, Aditya M., Madhushree B., Priyanka S., and Sudeep T. *DV-Net: An Enhanced Fully Convolutional Network for Volumetric Prostate Segmentation from Magnetic Resonance Imaging*. Submitted to Pattern Recognition and Image Analysis, Springer, 2020.
- **Aman A.**, Aditya M., Priyanka S., Swati J., Sutapa R., and Ranjana M. *Using LSTM for the Prediction of Disruption in ADITYA Tokamak*. Submitted to Physics of Plasmas, AIP, 2020.
- **Poster**
- **Aman A.**, Aditya M., Priyanka S. *Volumetric Prostate Segmentation from MRI using FCNN*. AI/DL Research, Nvidia GTC, San Jose, 2019.
- **Pre-print**
- **Aman A.**, Aditya M., Priyanka S. *Behavioral Cloning in Autonomous Vehicle Using Deep Learning*.

## PROJECTS

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### Identifying Individuals from ECG

Aug - Sep 2019

- For authentication, the signals from a smartwatch are passed to a siamese network hosted on the cloud.
- The network converts the ECG frequencies to spectrograms and verifies the user.

### Classification of Temporal Satellite Imagery

Apr - May 2019

- A network to detect construction activities in real-time from satellite images.
- Trained a customized I3D Inception Network (3DCNN) and hosted it on AWS to download new satellite from Sentinel Hub, make predictions, and send the detected coordinates to the user.

### 3D Prostate Segmentation from MR Images

Sep - Dec 2018

- Modified baseline V-Net architecture to increase the dice coefficient from 0.81 to 0.87 using TensorFlow.
- The network was enhanced by using dilated convolution layers, deep supervision, data augmentation, and hyperparameter tuning techniques to provide smoother and accurate segmentation.

### Predicting the Dynamics of Tokamak Discharge

Mar - Jun 2018

*Department of Atomic Energy*

*Gandhinagar, India*

- Aimed at reducing the cost of operating a Tokamak, by predicting and preventing the disruption in time.
- Our ingenious LSTM based model predicted the disruption 12ms in advance at higher accuracy, the previous best being 8ms for ADITYA Tokamak.
- Developed the first algorithm that could be integrated with ADITYA to give real-time predictions.

### Speech Emotion Recognition

Jan - Apr 2018

- Trained a bidirectional LSTM network with attention to predict emotions using the IEMOCAP dataset.
- Features like MFCC, voice probability, and zero-crossing rate were extracted from the raw audio.

### Self-driving Car Prototype

Jul - Nov 2017

- *Autonomous-Arena* image dataset was generated by driving an RC car on a self-made indoor track.
- The generated data was used to train various deep learning models and compare their effectiveness in handling the image data.

## AWARDS & ACHIEVEMENTS

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### · Covid-19 Unsung Hero, HSBC India, 2020

For organising team-building activities and maintaining the well-being during the lockdown.

### · Most Innovative Idea, HSBC GradHack, 2019

Developed ECG-based authentication system using deep learning for people suffering from neurodiversity.

### · Merit-based Scholarship, Nirma University, 2016

Secured a 50% merit-based scholarship for four years during the undergraduate program.

## CERTIFICATIONS

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<b>AWS</b>	Machine Learning - Speciality, Developer - Associate, Solutions Architect - Associate.
<b>Nvidia</b>	Accelerated Computing with CUDA C/C++, Deep Learning for Computer Vision.
<b>Coursera</b>	Machine Learning, Deep Learning Specialization, Big Data Specialization.

## INTERESTS

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Body Building	Cooking	Cricket	Badminton	Reading	Podcast
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