

# Harshit Kumar

Boston, MA

kHarshit.github.io | kumar.hars@northeastern.edu | +1 (857) 693-9361  
github/kHarshit | linkedin/kHarshit | stackoverflow/6210807

## Education

**Northeastern University**, Boston, MA  
**Khoury College of Computer Sciences**

Sep 2022 - Present

MS Artificial Intelligence

GPA: 3.78/4.0

Courses: DS5010 Intro to Programming for DS, CS5100 Foundations of AI, CS5800 Algorithms

**Guru Gobind Singh Indraprastha University**, Delhi, India

Aug 2016 - Sep 2020

BTech in Computer Science and Engineering, top-4 in class

GPA: 8.72/10.0

## Skills

**Programming/Markup Languages:** Python, C++, C, SQL, Java, JavaScript, R, CSS3,  $\LaTeX$

**Machine Learning:** PyTorch, Tensorflow/Keras, Nvidia DeepStream, OpenCV, scikit-learn, pandas, numpy, matplotlib

**Tools & Frameworks:** Django, Flask, PostgreSQL, AWS SageMaker, MLFlow, Linux, Android

## Experience

**Vehant Technologies**, Noida, India

Aug 2020 - Aug 2022

Machine Learning Engineer

- Implemented 10+ People and Traffic Analytics solutions - line crossing, crowd estimation, abandoned object detection.
- Optimized end-to-end pipeline (GPU DL inference + CPU process) 1.5 times with Mixed Precision and Quantization.
- Integrated and deployed 8+ deep learning models using PyTorch, Nvidia TensorRT, DeepStream and MLFlow.
- Mentored 2 fellow teammates and gave technical sessions on Edge AI topics w.r.t. Video Analytics for Smart Cities.

R&D Intern

Jun 2019 - Jul 2020

- Researched and fine-tuned models for 15+ multi-label Pedestrian Attribute Recognition i.e. clothing, age, gender, etc.
- Applied monocular depth estimation methods for under-vehicle object detection with 90% accuracy.

**Arbunize Digital Media Pvt Ltd**, Delhi, India

Jun 2018 - Aug 2018

AI (NLP) Intern

- Adapted Satz sentence boundary detection using decision trees and neural networks reducing errors by 1/3.
- Extracted skills from resume and worked on classification models with 0.89 F1-score to predict job title.

## Projects

**Pothole detection and segmentation** [github]

Jan 2020 - Jun 2020

- Devised custom Mask R-CNN and YOLACT models for pothole segmentation on Indian roads with 25fps speed.
- Attained 86% accuracy, 0.30 mAP on custom testing dataset with PyTorch.

**Image captioning using Encoder-Decoder** [github]

Jan 2019 - Feb 2019

- Developed image captioning app based on Neural Image Caption model and reached BLEU-4 of 28.
- Designed ResNet152 CNN as encoder and LSTM as decoder, and deployed model on Django server.

**Face Generation using DCGAN** [github]

Feb 2019 - Mar 2019

- Implemented and trained Deep Convolutional Generative Adversarial Network on 200k images to generate faces.
- Achieved generator loss of 0.7 and discriminator loss of 1.8 to generate almost-real faces.

**Location based dengue prediction** [webpage]

Jan 2018 - Mar 2018

- Led a team of 5 students at hackathon to create Android app to give location-based dengue risk index using ML model.
- Achieved 0.84% accuracy with gradient boosted trees, utilizing weather conditions of user's location as features.

## Events & Achievements

- Attended Computer Vision Summit'22, PyData'22, NVIDIA GTC'22, GTC'21, GTC'20, Google Cloud Summit'18.
- Participated in Smart India Hackathon'18 finale, Rajasthan Hackathon 5.0, Rajasthan Hackathon 4.0.
- Received PyTorch Scholarship (**Deep Learning Nanodegree**) and Bertelsmann Scholarship (**Data Analyst Nanodegree**) by being in **top 3% out of 10k** applicants.
- Top-15 answerer** of all time on Stack Overflow in PyTorch category (**10th** to earn **PyTorch Silver badge**).
- Received Vehant Technologies' **Summer 2021 quarterly award** for best problem solving ability.