

Harshit Kumar

Boston, MA

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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 Data Science, CS5100 Foundations of AI, CS5800 Algorithms, CS5010 Programming Design Paradigm, CS6140 Machine Learning

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, R

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

Tools & Frameworks: Django, Flask, PostgreSQL, AWS SageMaker, Nvidia TensorRT, DeepStream, MLFlow, OpenVINO

Experience

Khoury College of Computer Sciences, Boston, MA

Jan 2022 - Present

Graduate Teaching Assistant

- Solving students' doubts for the course DS5010 Intro to Programming for Data Science under Prof Kylie Bemis.
- Grading assignments and quizzes of 50+ students.

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*.
- Trained and deployed 8+ deep learning models using *PyTorch*, *Tensorflow*, *Nvidia TensorRT*, *DeepStream*, *Intel OpenVINO*.
- 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.

TV Script Generation using LSTM [\[github\]](#)

Apr 2019 - May 2019

- Created TV script generation model in PyTorch by training RNN and LSTM on Seinfeld dataset.
- Utilized Adam optimization and Cross Entropy loss function to achieve loss below required 3.5.

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.

Events & Achievements

- **Conferences:** Computer Vision Summit'22, PyData'22, NVIDIA GTC'22, GTC'21, GTC'20, Google Cloud Summit'18.
- **Hackathons:** Smart India Hackathon'18 finalist, 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.