

Harshit Kumar

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Education

Northeastern University, Boston, MA

Khoury College of Computer Sciences

MS Artificial Intelligence

Sep 2022 - Dec 2024 (Expected)

Guru Gobind Singh Indraprastha University, Delhi, India

Ambedkar Institute of Advanced Communication Technologies and Research (now NSUT East Campus)

BTech in Computer Science and Engineering, top-4 in class, CGPA: 8.72/10.0

2016 - 2020

Skills

- 🔗 **Programming/Markup Languages:** Python, C++, C, SQL, Java, JavaScript, R, CSS3, \LaTeX
- 🔗 **Machine Learning:** PyTorch, Tensorflow / Keras, Nvidia DeepStream, OpenCV, sklearn, pandas, numpy, matplotlib
- 🔗 **Tools & Frameworks:** Django, Flask, PostgreSQL, AWS, Linux, Android

Experience

Vehant Technologies, Noida, India

Machine Learning Engineer

Aug 2020 - Aug 2022

- 🔗 Researched and solved **computer vision** related problems w.r.t. Intelligent **Video Analytics for Smart Cities**.
- 🔗 Implemented **10+ People and Traffic Analytics** solutions to Vehant's OKEAN AI platform – line crossing, dense crowd estimation, intrusion, abandoned object detection, wrong direction vehicle movement, etc.
- 🔗 Optimized the Vehant's OKEAN AI platform's processing (GPU DL inference + CPU processing) using **Mixed Precision** and **Quantization** by **1.5 times**.
- 🔗 Integrated and deployed **Edge AI** deep learning models using Nvidia **TensorRT** and **DeepStream**

R&D Intern

Jun 2019 - Jul 2020

- 🔗 Researched and fine-tuned models for multi-label Pedestrian Attribute Recognition i.e. clothing, age, gender, etc.
- 🔗 Researched on DL based **monocular depth estimation** methods for under-vehicle object detection.

Arbunize Digital Media Pvt Ltd, Delhi, India

AI (NLP) Intern

Jun 2018 - Aug 2018

- 🔗 Implemented Satz system for sentence boundary detection using **decision trees** and **neural networks**.
- 🔗 Extracted skills from resume and worked on classification models to predict job title using them.

Projects

Pothole detection and segmentation [github]

Jan 2020 - Jun 2020

- 🔗 Fine-tuned custom Mask R-CNN and YOLACT instance segmentation models for real-time pothole detection and segmentation on Indian roads with PyTorch and achieved 86% accuracy, 0.30 mAP on custom testing dataset.

ImageCaptioner: Image captioning using Encoder-Decoder [github]

Jan 2019 - Feb 2019

- 🔗 Developed image captioning app based on Neural Image Caption model utilizing encoder-decoder architecture.
- 🔗 Used CNN as encoder and LSTM as decoder, and deployed model on Django server.

TweetSense: Real-time social media sentiment analysis [webpage]

Jul 2018 - Aug 2018

- 🔗 Led a team of 3 students to develop an app that analyze tweets to provide real-time sentiment and tone analysis.
- 🔗 Trained Naive Bayes classifier for text analysis and incorporated IBM Watson API for tone analysis.

DengueApp: Location based dengue prediction [webpage]

Jan 2018 - Mar 2018

- 🔗 Led a team of 5 students at *Smart India Hackathon 2018 grand finale* to develop an Android app that gives real-time location-based dengue risk index using ML model hosted on Django server.
- 🔗 The gradient boosted trees, utilizing the weather conditions of user's location as features, outperformed other algos.

Events & Achievements

- 🔗 **Conferences:** NVIDIA GTC'22, GTC'21, GTC'20, Developer Connect'18, PyData'18, Google Cloud Summit'18
- 🔗 **Hackathons:** Smart India Hackathon'18 finalist, Rajasthan Hackathon 5.0, Rajasthan Hackathon 4.0
- 🔗 **Udacity scholarships:** Received PyTorch Scholarship (**Deep Learning Nanodegree**) (**top 3% out of 10k**) and Bertelsmann Scholarship (**Data Analyst Nanodegree**).
- 🔗 **Top 15 answers** of all time on Stack Overflow in PyTorch category (10th to earn **PyTorch Silver badge**).
- 🔗 Received Vehant's **Summer 2021 quarterly award** for best problem solving ability.