Rishabh Gupta

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EDUCATION

UMASS AMHERST
MS in Computer Science
Specialization in ML/AI
Aug 2020 | Amherst, MA
GPA: 3.7 / 4.0

IIT KANPUR
B.Tech.-M.Tech. Dual Degree in Electrical Engineering
Jul 2016 | Kanpur, India

COURSEWORK

GRADUATE
Machine Learning
Deep Learning for NLP
Computer Vision
Probabilistic Graphical Models
Reinforcement Learning
Convex Optimization
Systems for Data Science

UNDERGRADUATE
Digital Signal Processing
Data Structures and Algorithms
Probability and Statistics

SKILLS

LANGUAGES
Python • C++ • SQL • Java • MATLAB

LIBRARIES
Data Science:
NumPy • SciPy • Pandas • Matplotlib
Machine Learning:
Scikit-learn • XGBoost
Deep Learning:
PyTorch • TensorFlow / Keras • JAX
Graphs:
Pytorch Geometric • DGL
Vision, NLP, Speech:
OpenCV • NLTK • Hugging Face • Kaldi
Distributed Computing:
Spark • Hadoop

OTHERS
Git • Wandb • Shell • Docker • LaTeX

LINKS

Website:// **rishabhdotgupta.github.io**
Github:// **rishabhdotgupta**
LinkedIn:// **rishabhiitk**
Twitter:// **@rishabhml**

WORK EXPERIENCE

BOSCH | Computer Vision Intern
May 2019 - Aug 2019 | Pittsburgh, PA
- Proposed a novel AI-assisted road sign annotation pipeline for crowd workers to progressively reduce the search space of candidate road signs.
- Implemented knowledge graph-assisted few-shot classification module using variational autoencoders and triplet loss to recognize unseen road signs.

SAMSUNG R&D INSTITUTE | Senior Software Engineer
Jul 2016 – Jul 2018 | Bangalore, India
- Developed deep learning based acoustic models as part of ASR team.
- Improved ASR performance in challenging low-resource settings (far-field and non-native accents) using data augmentation, transfer and multi-task learning.
- Reduced latency and memory footprint of LSTM based embedded models.
- Received 'Samsung Citizen Award' for contributions to Bixby voice capabilities.

QUALCOMM | Summer Intern
May 2014 – Jul 2014 | Hyderabad, India
- Designed a method to identify LPDDR issues in faulty Snapdragon 805 devices.

RESEARCH EXPERIENCE

YALE UNIVERSITY | Research Assistant
Oct 2020 – Present | [Draft][Code]
- Designed a framework to **encode distributions** in a low dimensional space **using set encoders, GANs and optimal transport**.
- Currently working on applying our method to single cell perturbation data in order to extract new insights by generating samples from the embedding space.

MIT-IBM WATSON AI LAB | Independent Study
Jan 2020 – Aug 2020 | [Video][Paper][Code]
- Proposed a relation-dependent graph sampling method for **predicting drug-drug interactions using graph neural networks**.
- Presented at Graph Representation Learning Workshop, ICML 2020.

UMASS AMHERST | Independent Study
Jan 2020 – Aug 2020 | [Report][Code]
- Studied **few-shot learning for 3D shape classification** by analyzing multi-view, volumetric and point cloud representations using meta-learning framework.

IIT KANPUR | Final Year Thesis
May 2015 – Jul 2016 | [Paper]
- Studied optimal resource allocation and transmitter design problem for energy harvesting in interference alignment networks. Published in IEEE.

RELEVANT PROJECTS

TASK MAPPING FROM RESTING-STATE fMRI USING 3D CNNs
Designed a 3D U-Net model to predict task-activation maps from resting-state fMRI data using a volumetric segmentation-like framework.

ATTENTION NETWORKS IN HYPERBOLIC SPACE
Implemented attention network in hyperbolic space for natural language inference task and showed that it is better at capturing hierarchical relationships in language.