

GitHub: [mrinaljain17](#)  
LinkedIn: [mrinal-jain](#)

# MRINAL JAIN

+1 (646) 610-3572  
[mrinal.jain@nyu.edu](mailto:mrinal.jain@nyu.edu)

## EDUCATION

---

**New York, NY** **NYU Center for Data Science** **Sep 2019 – May 2021**

MS in Data Science. CGPA: 3.71 / 4.0

**Coursework:** Probability and Statistics; Optimization and Computational Linear Algebra; Machine Learning; Deep Learning; Big Data; Computer Vision\*

**Vellore, India** **Vellore Institute of Technology** **Jul 2015 – May 2019**

B. Tech. in Information Technology. CGPA: 9.15 / 10.0

## EXPERIENCE

---

**Machine Learning Intern** **PepsiCo** **Jul 2020 – Aug 2020**

- Trained a Word2Vec-like model on customer product baskets to create a low-dimensional embedding space of these products (using TensorFlow).
- Implemented the measures of “complementarity” and “substitutability” between different products under the representation learning paradigm, inspired by the paper - [Product2Vec](#).
- Used techniques like t-SNE to visualize the manifold and qualitatively validate that a pair of products that are complementary or substitutes must be close in the embedding space.

**Data Science Intern** **Noodle.ai** **Jan 2019 – May 2019**

- Developed a modular and reusable python framework (called “sequel”) for working with sequence-to-sequence models in Keras.
- Designed a benchmark suite for evaluating different sequence-to-sequence architectures for multivariate time series forecasting (on internal datasets of the company).

## PROJECTS

---

**Generating bird’s-eye view from multi-image scene using self-supervised learning** [GitHub](#)

- Pre-trained a denoising auto-encoder to be used as a feature extractor for road map construction, using images captured from moving vehicles.
- Combined the feature embeddings of the multi-view scene from each vehicle and used a U-Net to generate a top-down view of the binary road map.
- Achieved a threat score of 0.70 on the hold-out test set as part of the intra-class competition (with the best score in the class being ~0.81).

**“Mydia” – A open-source framework for working with videos in python** [GitHub](#)

- Developed an efficient and user-friendly python library for reading videos as NumPy tensors with more than 50,000\* cumulative downloads (according to the tracker [PePy](#)).
- Utilized python’s multiprocessing capabilities to read (multiple) videos in parallel, thereby reducing video processing time by 4x compared to other similar tools.
- Implemented other features, including custom frame selection in videos, frame resizing, grayscale conversion, and pixel normalization.

**Extreme multi-label classification** [GitHub](#)

- Achieved an average precision of 65% in classifying high-dimensionality observations (~5000 features) into one/more of the 4000 total classes.
- Used convex optimization to compute a “polynomial ensemble” of 4 different models (k-NN, SVM, random forests, and neural networks).

## TECHNICAL SKILLS

---

Programming Languages  
Python Data Science Ecosystem  
Deep Learning  
Image and Video Processing  
Database Management Systems

**Python (proficient)**, C++ (familiar)  
Scikit-learn, NumPy, Pandas, Matplotlib  
PyTorch (proficient), TensorFlow and Keras (familiar)  
OpenCV, FFmpeg  
SQL