Harshita Kukreja

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Education

New York University, Courant Institute of Mathematical Sciences — **New York, NY**
MS Computer Science [GPA: 3.81/4.0] — Sep 2021 – May 2023

Indira Gandhi Delhi Technical University for Women — **Delhi, India**
B.Tech Computer Science and Engineering [Aggregate: 81.3%] — Aug 2016 – July 2020

Experience

Machine Learning Research Associate — **New York, NY**
NYU Langone Health — Jul 2023 - Present
Contrast-Enhanced MRI using Non-Contrast 3D Images
- Spearheading the **Machine Learning** efforts for generating agentless contrast-enhanced MRIs.
- Leveraging **PyTorch Lightning** along with **nibabel** and **MONAI** to build, train and evaluate **3D UNet** model on **NYUMets** database managing development with **git**.

Machine Learning Graduate Researcher — **New York, NY**
NYU Grossman School of Medicine — Aug 2022 - May 2023
- Adapted the concept **Deep Learning** GLOM model's implementation for images to video using **PyTorch Lightning**, **TorchVision**, and **TorchVideo**.
- Performed **Exploratory Data Analysis** on Lung Adenocarcinoma cell scans and tailored the registration process for pixel-to-pixel correspondence of whole slide images using **Python**, **OpenCV**, **scikit-image**, and **OpenSlide**.

Software Engineer Intern — **Boston, MA**
Tech For Good Inc. — Jun 2022 - Aug 2022
- Engineered network congestion reduction with **LeCAR** Machine Learning algorithm to **cache** data.
- Reduced network latency, bridging the digital divide of internet accessibility for underrepresented communities.
- Achieved a **10%** increase in cache-hit ratio, optimizing network efficiency.

Deep Learning Research Associate — **Delhi, India**
Netaji Subhas University of Technology — Jun 2019 - Aug 2021
Advisor: M P S Bhatia — [Paper 1] [Paper 2] [Paper 3] [Paper 4]
Denoising and Classification of Biometric Images
- Diminished Non-Local Means filter performance time by **75%**, improving biometric image denoising on iris and palmprint.
- Achieved higher PSNR values of upto **40.86** in **4.4 seconds** and classification accuracy of **98.39%** for denoised image classification on the pretrained ResNet50 model in PyTorch.

Software Developer Intern — **Delhi, India**
Leiothrix Technologies Pvt. Ltd — Jan 2018 - May 2018
- Designed a web-based solution to connect users with mental health specialists using **HTML** and **CSS**, and **PHP**, utilizing **Skype API** to set up meetings and send invites.
- Streamlined the dynamic **RSS** feed system, resulting in a **20%** increase in user engagement.

Projects

Social Media Analysis of GLP-1RA — [POSTER]
Digital Health Lab, Johns Hopkins Medicine International — [NLP, BERTopic, Tweepy]
- Constructed a web scraping pipeline for collecting and preprocessing tweets using **Twitter API v2**, **Python**, and **Tweepy**.
- Applied topic modeling using **BERTopic**, **dimensionality reduction**, and **TF-IDF** scores to identify key themes.
- Performed sentiment analysis with **RoBERTa** to quantitatively assess the sentiments expressed in tweets.

Promotions Resource in an E-Commerce Website — [CODE]
- Designed the back-end for the Promotions team of an eCommerce website as a collection of **REST API** services for a client.
- Worked on **Docker** containers with **Kubernetes CI/CD** pipelines to integrate code with **nosetests** before deploying it, simulating an Agile development with biweekly sprints.

Autism Spectrum Disorder Screening using Predictive Analytics — [CODE]
- Performed **EDA** using **Tableau**, **R**, **Pandas**, and **Matplotlib** on the Autism Spectrum Disorder (ASD) dataset to screen children, adolescents, and adults likely to have ASD.
- Showcased exemplary **supervised machine learning** approaches including **Logistic Regression**, **Random Forest** and **Decision Trees** to predict ASD, with Random Forest achieving the best **F1-score** of **99%**.

Skills

Languages	Python, Java, C++, C, R, SQL, HTML, CSS, JavaScript, Embedded C, LaTeX
Libraries/Tech	PyTorch, PyTorchLightning, TensorFlow, Keras, Jupyter, NumPy, Pandas, scikit-learn, Matplotlib, Seaborn, Tableau, Linux, Git, Agile, CI/CD, Docker, Kubernetes, SQLAlchemy, A/B Testing, IBM Cloud
Coursework	Data Visualization & Analytics, Deep Learning Systems, Computer Vision, Machine Learning, DevOps, Database, Algorithms, Data Structures, Compilers, Object Oriented Software Engineering, Networking
TA	Machine Learning, Computer Vision, Artificial Intelligence, and Algorithms