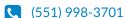
# **Abhinav Gupta**



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#### Education -

New York University

New York, NY

Masters in Computer Science (GPA: 3.97/4.00)

Jan 2021 - Dec 2022

Relevant Coursework: Natural Language Processing and Understanding, GPU, Deep Learning, MultiCore Processors

• Indian Institute of Technology Guwahati

Guwahati. India

Bachelors in Mathematics and Computing (GPA: 8.06/10.00)

July 2015 - June 2019

Relevant Coursework: Linear Algebra, Parallel Computing, Databases, Machine Learning, Probability, Calculus, Statistics

### **Experience**

• New York University

New York, NY

Research Assistant | Multimodal Deep Learning | Prof. Narges Razavian - NYU Langone Health

July 2022 - Present

- Building a GPT style open-source benchmark for Electronic Health Records (EHR).
- Skills: Healthcare, Multimodal DL, Benchmarking Tasks and Dataset, Huggingface

• Samsung Electronics

Bangalore, India

Senior Software Engineer | 5G Mobile Communication Systems

June 2019 - July 2021

- Architected and automated the issue management pipeline for 5G Systems team which saved around 1 hour of daily repetitive work per team engineer.
- o Developed sensor beam management driver code for proper 5G network beam selection.
- Optimized and ported in-house multi-core Real-Time Operating System (RTOS) for Samsung LSI 5G modems.
- Implemented MediaTek chipset's Mobile Broadband Interface Model (MBIM) extension for Samsung.

R&D Summer Intern | Advanced Technology Labs

May 2018 - July 2018

3-D handwriting recognition with a wearable input system i.e. Samsung Gear Watch.

### **Projects**

- ML & Privacy in Healthcare: Studying the impact of pre-training and fine-tuning a multi-modal (chest radiograph images + clinical text reports) architecture in a federated learning setup and comparing against training in centralized setting.
- Domain Adaptation of Pre-trained Language Models NLP: Explored domain adaptation and few-shot learning capabilities of semi-large PLMs like GPT-2 and CTRL, to improve performance on low resource downstream tasks without having to deal with large computation power needs. (Supervisor: Prof. Sam Bowman)
- Semi-Supervised Learning for Object Detection Computer Vision: Competed and finished in first position on object detection task leaderboard. We employed a combination of several self-supervised models and object detector heads and concluded that Barlow Twins + Deformable DETR performed the best. (Supervisor: Prof. Yann LeCun)
- Relation Extraction Survey NLP: Analyzed and implemented several Deep Learning methods to recognize drug-drug interactions (relation extraction) that appear in clinical texts like DrugBank and MEDLINE.
- Generative Adversarial Network: Transferring the pose of a given person to a target pose using a GAN network.
- Toy Language Interpreter: Built a python based toy language interpreter using regex and various OOPS features which could efficiently handle nested loops, basic function calls and several other compound statements.
- Operating System Extensions: Built a prototype linker and scheduler to replicate general OS functionalities. Also implemented a basic linux shell from scratch in C programming language which could efficiently handle job control and pipelining.
- Database modelling of Twitter Dataset NoSQL: Implemented an efficient database model in Cassandra and Neo4j to execute queries on twitter dataset using Python.

## Skills and Leadership Experiences

Programming Languages C, C++, Python, Java \*, R, Bash, JavaScript \*

Miscellaneous

ML/DL/CV Frameworks PyTorch, Tensorflow, OpenCV \*

MySQL, NoSQL, CUDA \*, OpenMP \*, MPI \*, Git, Matlab, HTML, CSS

\* Elementary Proficiency

- Graduate Teaching Assistant (NYU): Natural Language Processing, Numerical Computing, and Algorithmic Problem Solving
- Placement Coordinator 2017-19: Worked as a member of the Centre for Career Development, IIT Guwahati to plan and coordinate full-time Jobs and Internships of around 1000 students across 11 departments.