Anubhav Goel

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Education

The University of Texas at Austin
MS in Computer Science | Fully-funded Research Assistantship — *Aug 2022 - May 2024*
Advanced Operating Systems, Advanced Compilers, Natural Language Processing

Indian Institute of Technology Bombay — **GPA: 9.35 / 10**
Dual Degree (B.Tech+M.Tech) in Electrical Engineering | Minor in Computer Science — *Jul 2017 - May 2022*
Advanced Machine Learning, Stochastic Optimization, Computer Graphics

Experience

Futurewei Technologies — *Austin, Texas*
ARVR Algorithm Research Intern — *May 2023 - Present*
- Developing a 3D rendering platform with real-time capabilities, custom model and scene rendering, synchronization support for multiple users, and audio integration targeted towards mixed reality applications
- Built a GLB rendering module for 3D character models which has been incorporated into existing codebase
  Tech Stack: OpenGL, C++, Unity, Blender, Python, OpenCV

The University of Texas at Austin — *Austin, Texas*
Graduate Research Assistant (Under Prof. Haris Vikalo) — *Jan 2023 - Present*
- Researching capabilities of transformer-based deep learning models to detect long-range correlations in human genomic data and exploring their potential use for early diagnosis of genetic diseases; achieved **78%** accuracy competitive with SOTA models
  Tech Stack: PyTorch, C++, Bash

McKinsey & Co. — *Gurugram, India*
Data Analytics Intern — *May 2020 - Aug 2020*
- Developed a data processing tool for automating strategy analysis which led to **over 30%** decrease in analysis time and was subsequently incorporated by the Corporate and Investment Banking team in their Insights pipeline
  Tech Stack: VBA, Python

Select Projects

Controlled Generation using Diffusion-based LM — *UT Austin, Texas*
Guide: Prof. Greg Durrett — *Spring 2023*
- Adapted diffusion models for the discrete text domain and evaluated their performance and fluency for output control task on large language models in order to improve their deployability in real-world applications, achieving **85%** accuracy and **6.95** perplexity score

Optimizing Recursive Copy using `io_uring` — *UT Austin, Texas*
Guide: Prof. Chris Rossbach — *Fall 2022*
- Utilized shared memory structures (SPSC ring buffers) between application and kernel, and asynchronous IO introduced by the `io_uring` interface in Linux 5.1, to achieve **upto 2.5x speedup** in `cp -r` operations across a variety of workloads

Global Minimum of Non-Convex Functions — *IIT Bombay, India*
Guide: Prof. Vivek Borkar — *2022*
- Developed a novel algorithm for obtaining the global minimum of non-convex functions by approximating their convex envelope based on the convergence of Minkowski sum of sets to successfully escape local minima

Chance Constrained Markov Decision Process — *IIT Bombay, India*
Guide: Prof. Vivek Borkar — *2021*
- Used Markov Decision Process framework to model random processes under probabilistic constraints and implemented a policy gradient-based reinforcement learning scheme to parametrize policies for opportunistic scheduling in fading channels

Technical Skills

Programming C/C++, Python, Java, Bash, SQL, R, VBA, VHDL
Software Git, PyTorch, TensorFlow, Hugging Face, MATLAB, OpenCV, OpenGL, Unity, Blender, FUSE, LLVM

Honors & Awards

2022 **J N Tata Scholar**, for pursuing higher education in computer science — *India*
2022 **Excellence in Academics Award**, for excellent academic performance (Top 3 out of 121) — *IIT Bombay*
2020 **Erasmus+ Scholarship Award for Semester Exchange**, to Technical University of Denmark — *Denmark*
2015 **National Talent Scholar**, a scholarship by NCERT, Government of India (Top 1000 out of 1 million+) — *India*

Teaching & Extracurriculars

Advanced Machine Learning, Teaching Assistant under Prof. Joydeep Ghosh — *Fall 2022, UT Austin*
Graduate Image Processing, Teaching Assistant under Prof. Amit Sethi — *Fall 2021, IIT Bombay*
Awarded Excellence in Teaching Assistantship Award
Department Academic Mentor — *2020-2021, IIT Bombay*