# Dhruvil Gorasiya

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## Education

**Arizona State University** **August 2023 – May 2025**
*Master of Science, Computer Science, GPA: 3.67/4.0* *Tempe, Arizona*
**Courses:** Foundation of Algorithm, Digital Image Processing, Data Visulization

**Dhirubhai Ambani Institute of Information and Communication Technology** **July 2019 – May 2023**
*Bachelor of Technology in Information and Communication Technology, GPA: 3.3/4.0* *Gandhinagar, India*
**Courses:** Data Structures and Algorithms, Design and Analysis of Algorithms, Database Management Systems, Operating Systems, High-Performance Computing, Software Engineering, Bas1c Electronic Circu1ts, Dig1tal Logic Design, Analog CircUits, and Machine Learning.

## Skills

- **Language** : C, C++, Python, MATLAB
- **Libraries** : Numpy, Matplotlib, PyTorch, TensorFlow, Scikit-learn, Pandas, OpenCV
- **Database** : MySQL, PostgreSQL
- **Machine Learning** : Linear and Logistic Regression, Classification, Decision Tree, Support Vector Machine, K-Mean Clustering, Principal Component Analysis, Neural Network, Deep Learning, Computer Vision
- **General** : DSA, OOPS, Statistics, Data Mining, Large Language Models, Tableau, Docker, Git, Jupyter Notebook

## Relevant Experience

**Reaseach Intern**, DAIICT, Gandhinagar, Gujarat, India *January 2023 – May 2023*
- Spearheaded the implementation of a state-of-the-art deep learning architecture for 1D profile reconstruction from 2D plasma images.
- Extracted crucial plasma behavior information with an exceptional PSNR equal to 38.91 and SSIM of 0.9842, including shape, position, impurity distribution, and MHD instabilities.
- Achieved a significant improvement in plasma imaging diagnostics by leveraging cutting-edge deep learning techniques, positioning the project as a valuable and impactful addition to the field of plasma technologies.

**Summer Research Internship**, DAIICT, Gandhinagar, Gujarat, India *May 2022 – July 2022*
- Expanded groundbreaking research in imaging diagnostics for plasma-based applications, resulting in 1 presentation at international conferences.
- Examined and implemented cutting-edge denoising techniques, comparing 5 DL-based methods with 6 traditional approaches for comprehensive evaluation.
- Demonstrated exceptional proficiency in leveraging the ML-based technique MWCNN, achieving a remarkable 36.58 improvement in PSNR over conventional methods in plasma imaging diagnostics, solidifying my position as a highly valuable candidate for further research opportunities in this rapidly advancing field.

## Projects

**Advanced Techniques in Chest X-ray Image Processing** *August 2023 - December 2023*
- Advanced the accuracy and applicability of chest X-ray analysis for early detection and diagnosis of respiratory conditions.
- Utilized cutting-edge datasets and state-of-the-art architectures: ChestXray14 dataset and Swim Base for classification, TBK11 dataset and DINO for localization, and Pneumothorax dataset with UPerNet for segmentation..
- Achieved significant results, including 0.8083 mAUC on fine-tuning and 0.7195 mAUC on training from scratch for classification, as well as a 0.195 AP score for 0.5 to 0.9 IoU range in localization.

**VAST Challenge 2022 - Challenge 3: Economic** *August 2023 - December 2023*
- Led a team in analyzing dynamic data for VAST 2022 Mini-Challenge 3, providing insights into the economic and social landscape of the city of Engagement.
- Conducted a thorough examination of a multifaceted dataset to shape visualizations and extract key insights.
- Designed and created eight interconnected visualizations, incorporating industry best practices, with applications in city planning, budgeting, and pattern recognition within city limits.

**Parallel Quicksort on Distributed System** *January 2022 - April 2022*
- Led and executed a project to optimize array sorting on a multicore system through parallel processing, resulting in a 50% reduction in sorting time compared to the traditional sequential method.
- Employed parallelized dual-pivot quicksort with OpenMP and OpenMPI interfaces, leveraging the capabilities of 2,4,6,8, and 12 cores for enhanced efficiency.

**Game-Zone DBMS** *August 2021 - November 2021*
- Prepared SRS Document for the Game-zone DBMS software. Designed ER Model Diagram Relational Model. Implemented it using PostgreSQL

## Volunteer Experience & Extracurricular Activities

**Annual Fest Committee DAIICT**, Volunteer *April 2020 – March 2021*
- Prioritized numerous hours in contributing to the planning and execution of events for the university's annual fest committee.
- Scheduled exemplary organizational abilities and fostered effective teamwork, leading to an overall 20% increase in the number of attendees and participants in the university fest.

## Achievements

- Recognized for impactful contributions to the field of plasma research by presenting groundbreaking work at the prestigious International Conference on Numerical Simulation of Plasmas (ICNSP), held in Japan in 2022.