DRISHTI ARORA

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EDUCATION

DePaul University, Chicago, IL **Jan 2025 –Jun 2026**
Master of Science in Computer Science Current GPA: 4.0
(Concentration: Data Science)

Amity University, Uttar Pradesh, India **Sep 2020 – Jun 2024**
Bachelor of Technology in Computer Science and Engineering CGPA: 9.42/10
(Hons. Specialization in Data Science and Analytics)

WORK EXPERIENCE

Research Assistant, *DePaul University, under Prof. Bamshad Mobasher & Prof. Roselyne Tchoua* **Apr 2025 - present**
Project: ReDDDoT (Responsible Design, Development and Deployment of Technologies) Platform

- Designed and implemented a **recommender system** using Graph Neural Networks and Knowledge Graphs to match migrants with essential resources.
- Built an entity-linking pipeline for migrant profiles, integrating multilingual data and created an interactive dashboard using React to visualize resource connections and recommendation pathways.
- Improved **matching efficiency by 35%**, reducing manual intervention in connecting migrants to services.

Research Assistant, *DePaul University, under Prof. Casey Bennett* **Mar 2025 - present**
Project: Conversational Dementia Speech System with Social Robots

- Developed **biomarker detection** modules to analyze speech impairments for early dementia diagnosis, annotated the clinical speech datasets and enhanced detection performance by **~18% over baseline models**.
- Engineered and deployed an LLM integrating the biomarkers on **QT Robot via ROS** for real-time patient interaction.
- Implemented **sound source triangulation** on QT Robot to accurately localize patient speech and improved interactive response precision.

Data Science Intern, *Haier Appliances* *India Pvt Ltd, Uttar Pradesh, India* **Jun 2023–Jul 2023**

- Analyzed sales data resulting in a **5% increase in profit margins** by optimizing pricing strategies and identifying untapped target markets.
- Developed data-driven recommendations that improved product positioning and promotional campaigns contributing to a **12% growth** in sales.

Developer Intern, *Salesforce*, *Virtual Internship* **May 2023–Jul 2023**

- Gained hands-on experience in developing and customizing Salesforce applications through comprehensive virtual training.
- Engineered a custom case escalation trigger using Apex that automatically routed high-priority customer support tickets to senior technicians, reducing average **response time** for critical issues by **20%**.

Data Science Intern, *MedValue Offshore Solutions, Inc, IL, USA* **Jan 2023–Mar 2023**

- Developed a classification model to automatically triage **medical insurance claims** by analyzing unstructured text in patient reports.
- Streamlined the claims processing workflow with this model, directly contributing to a 15% increase in decision-making efficiency.

Data Science Intern, *rSTAR Technologies, New Delhi, India* **Aug 2022–Nov 2022**

- Designed and deployed a **conversational AI chatbot** using NLP techniques to automate responses for customer service inquiries.
- Resolved over **30% of initial queries** leading to a 15% reduction in support ticket volume.

ACADEMIC PROJECTS

Multi-head Attention based Vision Transformer Network for Breast Cancer Classification

- Developed a hybrid architecture for breast cancer classification integrating a Deep Convolutional GAN for **data augmentation**, a modified U-Net for lesion **segmentation** and a **multi-head attention-based Vision Transformer** for classification.
- Optimized the classifier to reduce the number of trainable parameters to approximately 9 million and achieved classification **accuracy of 92.72%** and a recall of 92.31% on the BreakHis dataset.

Hybrid Feature Extraction for Melanoma Diagnosis

- Developed a robust skin lesion classification system by combining deep learning CNN features with **rotation-invariant Local Binary Patterns** (LBP), achieving **85.2% accuracy** and 0.91 AUC using XGBoost.
- Engineered a hybrid feature extraction pipeline that improved model generalization and sensitivity for early-stage melanoma detection.

Quora Insincere Questions Classification using BERT Framework

- Built a BERT-based NLP model to classify insincere questions, improving automated content moderation.
- Designed an optimized data preprocessing and text encoding pipeline for efficient large-scale inference.

PUBLICATIONS

- *BCED-Net: Breast Cancer Ensemble Detection Network using Transfer Learning and XGBoost Classifier using Mammography images* in Osong Public Health and Research Perspectives.

- *Performance Evaluation of Machine Learning Classifiers for Brain Stroke Prediction* in International Journal of Bioinformatics Research and Applications.
- *Multi-head Attention based Vision Transformer Network for Breast Cancer Classification using GAN-Augmented Pathological Images* in Applied Soft Computing Journal (submitted for publication).
- *A Novel CNN Architecture for Acrylamide Detection in Carbohydrate-Rich Food Products* in Journal of Food Control (submitted for publication).
- *Combining Deep Features with the Invariant Local Binary Pattern features for Skin Cancer Classification* in 2023 IEEE Pune Section's International Conference (IEEE PuneCon2023).
- *Advancements in Breast Cancer Detection: A Comprehensive Review of Deep Learning Techniques* in IEEE International Conference on Artificial Intelligence for Innovations in Healthcare Industries (ICAIIHI-2023).
- *Quora Question Sincerity Detection Using BERT-Based Framework* in 14th International Conference on Cloud Computing, Data Science & Engineering.
- *Structured Implementation of ML Algorithms for Cardiovascular Disease Detection* in 5th International Conference on Computing, Power, and Communication Technologies (IC2PCT).

SKILLS

Domain Expertise: Data Science and Analytics, Machine Learning & Deep Learning, LLMs, Statistical Modeling, Data Munging and Visualization, Human-Robot Interaction (ROS), Conversational Speech Systems, Recommender Systems, Chatbot Development, Algorithm Design, Database Management, Operating Systems.
Technical Skills: *Languages*: Python, R, Java, C/C++, SQL | *ML/DL*: Scikit, PyTorch, Keras/TensorFlow, Hugging Face Transformers, NLP, Computer Vision | *Data Storage & Visualization*: MySQL, Oracle Database, Neo4J, Tableau, Matplotlib, Seaborn, Plotly, ggplot | *Web Frameworks*: Flask | *Robotics*: ROS | *Version Control*: Git, Github.
Soft Skills: Problem-Solving, Critical Thinking, Communication, Data Storytelling, Business Acumen, Leadership.

CERTIFICATIONS

IBM Data Science Professional Certificate
Google Data Analytics Professional Certificate
Developer Virtual Experience Program, Accenture
Data Analytics & Visualization Virtual Experience, Accenture
Data Analytics Consulting Virtual Internship, KPMG
DSE200X: Python for Data Science, UC San Diego
CCNAv7: Introduction to Networks, Cisco
HKU100X: Blockchain and Fintech, HKU

ACHIEVEMENTS

- **Awarded 100% Merit Scholarship** throughout B.Tech program; **ranked first in the department (Gold Medalist)**.
- Awarded "Best Leadership Quality" Salver.
- Featured in a **Salesforce promotional video** for the Virtual Internship Program.
- Secured the prestigious **AWS AI & ML Scholarship** for AI Programming with Python Nanodegree; selected from a pool of 2000 shortlisted candidates worldwide.