

# TANUSREE DEBI

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## EDUCATION

**PhD** in Computer Science, The University of Georgia Jan 2025-Dec 2029  
**Master's** in Computer Science, The University of Texas at Arlington, **GPA: 4.00/4.00** Jan 2021 - Dec 2023  
**Bachelor's** in Computer Science & Engineering, Chittagong University of Eng. and Tech., **GPA: 3.87/4.00**, May 2012 - Mar 2017

## RELEVANT COURSES

Algorithm, Database Management System, Human-Centered Computing, Data Mining, Machine learning, Artificial Intelligence, Advanced Computational Models and Algorithms, Deep Learning, Computer Vision, HCI, Advanced Topics on Security

## TECHNICAL SKILLS

**Languages:** Python, C, C++, Java, MATLAB, Prolog, HTML

**Frameworks:** PyTorch, Scikit-Learn, Pandas, Numpy, TensorFlow, OpenCV, NLTK, AWS, Spark, Hadoop, LangChain, Flask

**Database:** SQL, MySQL, Oracle

**Tools:** Jupyter Notebook, Google Colab, GIT, Tableau, LaTeX, Linux, Power BI, Postman, Canva

**Expertise:** Machine Learning, Data mining, Human-Centered AI, Information retrieval, Statistical Modeling, Data Visualization, NLP

## RESEARCH AND WORK EXPERIENCE

**Graduate Research Assistant**, [Socially Responsible Tech Lab](#) Jan 2025- Dec 2025

Conducted research at the Socio-Responsible Technology Lab focusing on socio-responsible AI, including water footprint and AI-water externality analysis, LLM storytelling audits, quantitative methods in social computing, and literature-based studies on the impact of social media on teenagers.

**Graduate Research Assistant**, [Database Exploration Lab \(DBXLab\)](#) Jan 2022 - Dec 2023

Supervisor: [Dr. Gautam Das](#)

- Top-k attribute selection based on Approximate Functional dependency using upper and lower bound FD
  - The objective is to extract the top-k most significant features from the dataset by utilizing mutual information, association data mining techniques, and both upper and lower-bound functional dependency, allowing for a comprehensive assessment of the relationships between these features within the datasets.
- Efficient approximate top-k mutual information based feature selection
  - Aims to create a novel measure of Attribute Average Conflict that approximates top-k attributes efficiently by utilizing approximate functional dependency in databases, demonstrated through Monte Carlo simulations and experiments with high-dimensional datasets

**Lecturer**, CSE Department, Chittagong University of Engineering and Technology Sept 2017 - Dec 2020

**Teaching Courses:** C Programming, Operating System, Computer Architecture, Software Engineering, Digital System Design

## SELECTED PUBLICATIONS

- "Whispers of Wealth: A Systematic Red-Teaming Study of the Agent Payments Protocol (AP2)" [Submitted]  
Tanusree Debi, Wentian Zhu, Pranjol Sen Gupta ([IMNS,2026](#)).
- "Auditing Yelp's Business Ranking and Review Recommendation Through the Lens of Fairness"  
Mohit Singhal, Tanusree Debi, G. Das ([ICWSM,2025](#)).
- "Path and Partner Selection in Unstructured Resource-Constrained Environments Based on Node Psychology in the Context of IoT" Tanusree Debi, Assaduzaman([ICASERT 2019](#)).
- "Online Technology: Effective Contributor to Academic Writing"  
Md. Hafiz Iqbal, Tanusree Debi, Mohammad Shamsul Arefin ([ICO, 2020](#)).
- "Developing a Framework for Vehicle Detection, Tracking and Classification in Traffic Video Surveillance"  
Rumi Saha, Tanusree Debi, Mohammad Shamsul Arefin ([ICO 2020](#)).
- "Development of a System for Traffic Data Analysis and Recommendation"  
Naima Sultana, Tanusree Debi, Mohammad Shamsul Arefin ([ICO 2019](#))

## PROJECTS

**Whispers of Wealth: Red-Teaming Google's Agent Payments Protocol via Prompt Injection**([AI Red-Teaming](#), LLM Security, Prompt Injection, Agentic Systems, Fintech Security, Adversarial Testing)

- Conducted AI red-teaming research on Google's Agent Payments Protocol (AP2) by building a functional agent-based prototype and performing adversarial prompt-injection testing to evaluate security risks in conversational payment systems. Identified critical vulnerabilities including unauthorized tool invocation, data exfiltration, and manipulation of payment authorization flows, and proposed defensive design recommendations to improve the robustness and trustworthiness of AI-driven financial transactions.

**CREAiT: Human-Centered AI for Creative Communities** ( [Human-Computer Interaction](#), [Human-Centered AI](#), Qualitative Research, Ethical AI, UX Design, Prototyping)

- Designed and evaluated a human-centered AI system that enables artist opt-in data sharing, transparent AI credibility signaling, and fair compensation mechanisms, grounded in stakeholder needs and ethical AI principles. Conducted semi-structured interviews with artists, researchers, and industry practitioners; synthesized findings using empathy maps, POV statements, and thematic analysis; translated insights into UX concepts, wireframes, task flows, and experience prototypes, and iteratively tested assumptions around trust, consent, and AI transparency to inform responsible system design.

#### **ArchLibrary:Library Management System** ([DBMS](#), [Spring Boot](#), [MySQL](#), [JWT](#), [Next.js](#), [REST APIs](#))

- Developed ArchLibrary for UGA, a full-stack library management system using Spring Boot, MySQL, JWT authentication, and Next.js to support book borrowing, fine management, and transaction tracking. Designed normalized relational schemas (3NF/BCNF) to ensure data integrity and implemented secure RESTful APIs with role-based access control for librarians and students. Built the system using a layered architecture (Controller, Service, Repository) and tested endpoints with Postman to ensure reliability and scalability.

#### **Facial Expression Recognition with Deep Learning** ([Computer Vision](#), [Deep Learning](#), [Machine learning](#))

- Implemented a facial expression recognition project, utilizing deep learning models (CNN and Transfer Learning)(54.6%) and traditional ML strategy (SVM, KNN, Random Forest)(46%); optimized accuracy through advanced image processing techniques, parameters tuning, and feature extraction methods.

#### **LLM-based Q&A Chatbot for E-Learning Company** ([Google LLM](#), [Langchain](#), [Streamlit](#), [Text embeddings](#) )

- Implemented an end-to-end LLM project utilizing Google Palm LLM and Langchain to develop a Q&A system for e-learning company 'Codebasics', offers courses & bootcamps, accommodates a large learner base active on its Discord server for students. Our **Streamlit-based** solution optimizes Q&A exchanges, provides data insights, enhancing student engagement, learning experiences, and potentially reducing staff workload.

#### **Information retrieval search engine based on Tf-IDF** ( [Text Mining](#),[Tf-IDF](#), [Natural Language Processing](#))

- Implemented three functions: Calculate token IDF, document wise normalized TF-IDF weight, and cosine similarity score for a query-document matrix using the US Inaugural Addresses data.

#### **Integrated Directory Synchronization and Management System** ([Distributed Systems](#), [Client-Server Architecture](#), [Concurrency Control](#), [Real-Time Synchronization](#))

- Designed and implemented a distributed directory synchronization system with one client and two servers to support real-time merging, sorting, and data synchronization, along with document management features such as file locking, task queuing, and user notifications.

## **AWARDS AND EXTRACURRICULAR ACTIVITIES**

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- **SenSys 2023** NSF Student Travel Grant.
- **SenSys 2023** ACM Sigs Travel Grant
- **Grace Hopper Conference,2022** Travel Grant(UTA).
- Recipient of CUET Ex-Students and CSE Dept. **scholarships** (2013-2016) for exceptional performance (**1st** among 120 students).
- Organizing member of the ECCE-2019 conference in Bangladesh.

## **CERTIFICATIONS**

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- Deep Learning Specialization by Coursera
- The Data Science Course: Complete Data Science Bootcamp by Udemy
- Machine Learning A-Z™: AI, Python, and R by Udemy