Doniel Tripura

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PROFESSIONAL SUMMARY

Dedicated educator and researcher in computer science with expertise in machine learning, deep learning, and data-driven problem-solving. Passionate about mentoring students and fostering an engaging learning environment. My research focuses on real-time data analytics, particularly in healthcare applications, as demonstrated in my thesis on enhancing diabetes prediction using deep learning and ensemble techniques. I have worked with models like ResNet50, ResNet15, Random Forest, XGBoost, Support Vector Machines (SVM), and K-Nearest Neighbors (KNN) to improve predictive accuracy. Committed to advancing research in artificial intelligence, cybersecurity, and human-computer interaction while inspiring the next generation of computing professionals.

EDUCATION

- **Khulna University of Engineering & Technology**   *February 2020 - March 2025*
  BSc. in Computer Science and Engneering   Khulna 9203, Bangladesh
  ◦ GPA: 3.70/4.00

- **Khagrachari Cantonment Public School & College**   *September 2019*
  Higher Secondary Certificate   Khagrachari, Chittagong, Bangladesh
  ◦ Grade: 5.00/5.00

- **Khagrachari Govt. High School**   *December 2017*
  Secondary School Certificate   Khagrachari, Chittagong, Bangladesh
  ◦ GPA: 5.00/5.00

RESEARCH & PUBLICATIONS

Enhancing Diabetes Prediction Accuracy Using Ensemble Technique and Deep Learning with Real-Time Data
Undergraduate Thesis   **March 2024 - March 2025**

- Developed a predictive model integrating deep learning (ResNet50, ResNet15) and machine learning algorithms such as Random Forest, XGBoost, SVM, and KNN.
- Collected real-time data from **Khulna Medical College (KMC)** to train and test the models, improving their relevance for healthcare applications.
- Compared the model's performance with other established models using the famous Pima Indian Diabetes dataset to validate its accuracy and robustness.
- Focused on real-time data processing to enhance the accuracy of diabetes prediction and optimize model performance.
- Conducted extensive model evaluation and fine-tuning to achieve the best results for healthcare prediction tasks.
- Explored the impact of ensemble learning techniques in improving classification outcomes, especially in medical diagnostics.

EXPERIENCE

Ostad - Teaching Assistant (Remote) - Coding Interview Preparation   **January 2025 - Present** 🔗

- Assisted students in preparing for coding interviews.
- Developed and facilitated practice sessions focusing on data structures, algorithms, and problem-solving techniques, enhancing students' confidence.
- Conducted individual and group assessments, identifying key areas for improvement and providing tailored feedback to optimize learning outcomes.
- Organized mock interview sessions, receiving positive feedback from participants for effectiveness and relevance in real-world interview settings.

HONORS AND AWARDS

- **Dean's Award** *2019 - 2020*
  Faculty of Electrical and Electronic Engineering (EEE), KUET [⊕]
  ○ Awarded for outstanding academic and extracurricular achievements in the *Computer Science and Engineering (CSE) department* under the EEE faculty.
  ○ Recognized for exceptional performance, dedication, and contributions to the university community.

ACHIEVEMENTS

Ranked 5th - PSTU IT Carnival Programming Contest 2024 **November 2024** ⊕
Ranked 35th - Khulna Regional Inter University Programming Contest 2024 **November 2024** ⊕
Ranked 59th - UIU Inter-University Programming Contest 2025 **January 2025** ⊕
Ranked 170th - ICPC Dhaka Regional 2024 - DIU **January 2025** ⊕
Ranked 21th & 20th - Intra KUET Programming Contest 2022 & 2023
Selected as one of the Top Team - BitFest KUET Datathon 2025 **January 2025** ⊕
Specialist - Codeforces (Max Rating: 1501) ⊕
3 Star - CodeChef (Max Rating: 1766, Country Rank: 294, Global Rank: 7278) ⊕
Ranked 3rd - Science Olympiad 2019, by BAS-FSIBL
Second Runner Up - Quiz Competition on, Digital Udbhaboni Mela 2018
Second Runner Up - Math Olympiad 2012, Category: Primary

SKILLS

- **Programming Languages:** C, C++, Python, Java, Swift
- **Web Technologies:** HTML, CSS, Bootstrap, React, PHP, Laravel
- **App Development & Frameworks:** Java, XML, Swift, SwiftUI
- **Database Systems:** Firebase, Oracle, MySQL
- **Data Science & Machine Learning:** TensorFlow, Scikit-learn, Pandas, NumPy, Matplotlib, PyTorch
- **DevOps & Version Control:** Git, Docker, GitHub Actions
- **Specialized Area:** Computer Graphics, Image Processing, Natural Language Processing (NLP)
- **Tools & Technologies:** VS Code, Android Studio, XCode, Figma, Postman
- **Research Skills:** Literature Review, Data Collection, Statistical Analysis, Academic Writing, Experiment Design, Technical Documentation

PROJECTS

Foodier - A dual iOS app project focused on a Food Management System **September 2023 - January 2024** ⊙

- Designed an order queue management component, streamlining the processing of orders at various stages.
- Implemented Firebase Firestore for seamless data synchronization, achieving a 50% faster order update time.
- Created a custom SwiftUI user interface, ensuring a visually appealing and intuitive user experience.
- Developed a dynamic HomeView system enabling personalized restaurant and menu exploration for users.

KUET-BANK - An Android project based on Bank Management System **September 2022 - January 2023** ⊙

- Developed a secure login and registration system with email verification and OTP authentication.
- Implemented a transaction management system for real-time user-to-user money transfers with minimal latency.
- Built a loan application and EMI payment system, streamlining financial operations for customers and admins.

KUET-BANK - A web-based Bank Management System **February 2023 - February 2024** ⊙

- Developed a secure login and registration system with email verification and OTP authentication.
- Implemented a transaction management system, processing real-time customer-to-customer transfers.
- Created an employee management dashboard for bank staff to manage customer accounts.
- Built an admin panel for data analysis and reporting.

DoRa Block Battle - An interactive AI-based game **July 2022 - September 2022** ⊙

- Developed an interactive game interface using Tkinter with single and multiplayer modes.
- Integrated AI algorithms (MinMax, Alpha-Beta Pruning, Genetic Algorithm, A*) for strategic gameplay.
- Designed adaptive gameplay that adjusts difficulty based on player actions.
- Conducted performance analysis to optimize AI decision-making efficiency.

Heart - An Android application for patient heart rate data   **September 2021 - December 2021**

- Developed an Android app to store and manage patient heart rate data.
- Integrated Firebase for real-time data storage and management.
- Implemented search functionality for patient record retrieval.
- Designed an intuitive user interface for seamless navigation.

Night Security Light - An Arduino-based security system   **March 2022 - May 2022**

- Designed an automatic night security light system using Arduino Uno and motion sensors.
- Integrated a PIR sensor for movement detection and an LDR for ambient light measurement.
- Implemented a Bluetooth module for remote control of the system.

Alphabet-Detection - An Image Processing project for detecting English alphabets   **March 2023 - October 2023**

- Developed an image processing system to detect and recognize English alphabets.
- Implemented computer vision techniques to improve accuracy in alphabet identification.
- Optimized processing speed for real-time applications in text recognition.

Automatic Bill Generator - A desktop app for KUET teacher's bill calculation   **September 2022 - December 2023**

- Built a desktop application to automate KUET teacher's payment calculation based on their departmental activities.
- Designed a data-driven calculation engine to streamline the payment process.
- Integrated report generation for accurate payment summaries.

Auto Birthday Wisher - A Python program to send automatic birthday wishes   **January 2023 - February 2023**

- Developed a Python script to automatically send birthday wishes via email or messaging apps.
- Integrated cron jobs and scheduling for timely execution.
- Used database storage for managing contact lists and birthdays.

Hospital Management System - A website for hospital management   **February 2023 - September 2023**

- Developed a hospital management system using Laravel, PHP, MySQL, and Bootstrap.
- Implemented patient record management, appointment scheduling, and billing modules.
- Designed an admin panel for staff and hospital administrators to track hospital activities.

Kokborok Compiler - A compiler for the Kokborok(Tripura) language   **September 2021 - December 2021**

- Developed a compiler for the Kokborok language as part of a Compiler Design course.
- Implemented lexical analysis, syntax parsing, and semantic analysis.
- Designed a custom language structure to support various programming constructs.

LEADERSHIP EXPERIENCE

General Member - Special Group Interested in Programming Contest (SGIPC)

- Enhanced problem-solving and analytical skills by participating in competitive programming discussions.
- Developed communication, teamwork, and networking skills through collaboration with peers.

Content and Training - LOOP, Control Engineering Club

- Developed training modules and created content for programming and control engineering education.
- Provided mentorship and leadership in training sessions for community engagement.
- Assisted in event coordination to foster learning and collaboration.

Office Secretary - Save A Smile

- A nonprofit organization run by students from different batches, dedicated to education, healthcare, and environmental sustainability.
- Oversaw the recruitment process, managing new member registrations and onboarding procedures.
- Maintained official records, meeting schedules, and internal documentation to ensure smooth organizational operations.
- Coordinated with various teams to plan and execute charity events, fundraising campaigns, and awareness programs.

VOLUNTEER EXPERIENCE

Event Organizer - BitFest 2025, 3rd KUET CSE National Festival [in]

- Organized the Inter-University Programming Contest (IUPC) at BitFest.
- Developed team management and communication skills through event planning and coordination.

ADDITIONAL INFORMATION

Languages:

Bangla (Native)

English (Intermediate)

Hindi/Urdu (Basic)

Interests:

- Competitive Programming
- Software Development
- Artificial Intelligence & Machine Learning
- Image Processing & Computer Vision
- Computer Graphics