

Jayonto Dutta Plabon

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Research interests: Large Language Models for Low-Resource Languages, Federated Learning, Explainable AI, and Privacy-Preserving Machine Learning.

Education

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| 2024–Present Exp: Jul'26 | M.Sc. in Computer Science and Engineering (Running) University of Asia Pacific, Bangladesh Thesis: <i>BanglaLex: A Fine-Tuned Large Language Model for Bangladeshi Legal Advisory with Retrieval-Augmented Generation and Hallucination Grounding (Expected Completion: June 2026)</i> – using a domain-specific RAG pipeline and a hallucination grounding mechanism to suppress factually unreliable outputs. | CGPA: 4.00*/4.00 |
| 2020–2024 | B.Sc. in Computer Science and Engineering University of Asia Pacific, Bangladesh Thesis: <i>Explainable federated learning for privacy-preserving bangla sign language detection</i> — conducted a systematic evaluation of five ML models (CNN, MobileNet, ResNet, VGG19, Inception) across three federated aggregation algorithms (FedAvg, FedProx, FedOpt) for privacy-preserving Bangla sign language detection eliminating reliance on centralized biometric data. | CGPA: 3.87/4.00 |

Employment

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| Jul'25–Present | Lecturer Dept. of Computer Science and Engineering, University of Asia Pacific Teaching undergraduate courses including Computer Fundamentals (50+ students) and Competitive Programming (60+ students); mentoring 8+ capstone projects on federated learning and NLP applications. | Dhaka Bangladesh |
| Jul'24–Jan'25 | Teaching Assistant Dept. of Computer Science and Engineering, University of Asia Pacific Served as TA for the OOP and DSA Lab; conducted weekly lab sessions for 60+ students, graded assignments, and provided one-on-one guidance during office hours. | Dhaka Bangladesh |

Publication

Journal Articles

- 2024 J1 **Explainable federated learning for privacy-preserving bangla sign language detection**
BS Diba, JD Plabon, MDM Rahman, D Mistry, AK Saha, MF Mridha
Eng. Appl. Artif. Intell. (Q1, Impact Factor: 8.0) DOI: [10.1016/j.engappai.2024.108657](https://doi.org/10.1016/j.engappai.2024.108657); Implementation: 🌐
- J2 **Federated Learning-Based Architecture for Personalized Next Emoji Prediction for Social Media Comments**
D Mistry, JD Plabon, BS Diba, MSH Mukta, MF Mridha
IEEE Access (Q2, Impact Factor: 3.6) DOI: [10.1109/ACCESS.2024.3448470](https://doi.org/10.1109/ACCESS.2024.3448470); Implementation: 🌐
- 2025 J3 **From centralization to decentralization: Blockchain's role in transforming social media platforms (Review Article)**
BS Diba, JD Plabon, N Tasnim, M Hossain, D Mistry, S Sarker, MF Mridha, Y Okuyama, J Shin
IEEE Access (Q2, Impact Factor: 3.6) DOI: [10.1109/ACCESS.2025.3561663](https://doi.org/10.1109/ACCESS.2025.3561663)
- J4 **Open problems and challenges in federated learning for IoT: A comprehensive review and strategic guide (Review Article)**
BS Diba, JD Plabon, TJ Mowla, N Nahar, D Mistry, S Sarker, MF Mridha, J Shin
Computers and Electrical Engineering (Q1, Impact Factor: 4.9) DOI: [10.1016/j.compeleceng.2025.110515](https://doi.org/10.1016/j.compeleceng.2025.110515)

Conference Proceedings

- 2025 C1 **Personalized Pomodoro Productivity Tracking with Privacy-Preserving Machine Learning in Human-Computer Interaction**
D Mistry, BS Diba, JD Plabon, SU Ahmed, MF Mridha
International Conference on Human-Computer Interaction DOI: [10.1007/978-3-031-93965-5_29](https://doi.org/10.1007/978-3-031-93965-5_29)

Book Chapters

- 2025 Ch1 **Privacy-Preserving Kidney Stone Detection from X-Ray Image Using Federated Learning**
JD Plabon, MM Rahaman, MR Tonmoy, MG Kibriya, A Ishraq
Book: *Federated Learning in Health Care Technology*. Publisher: Springer Nature Singapore
DOI: [10.1007/978-981-96-8353-6_4](https://doi.org/10.1007/978-981-96-8353-6_4)

Ch2 Transforming Healthcare Analytics: Federated Learning for Privacy-Preserving Liver Lesion Detection and Classification

MS Islam, JD Plabon, N Nahar, N Tasnim, SMRA Masud, J Shin, MR Tonmoy

Book: Federated Learning in Health Care Technology. **Publisher:** Springer Nature Singapore

DOI: [10.1007/978-981-96-8353-6_3](https://doi.org/10.1007/978-981-96-8353-6_3)

Ch3 Federated Learning Strategies for Confidential Leukemia Detection from Medical Images

JD Plabon, M Hossain, MA Kabir, D Mistry, MA Hamid

Book: Federated Learning in Health Care Technology. **Publisher:** Springer Nature Singapore

DOI: [10.1007/978-981-96-8353-6_6](https://doi.org/10.1007/978-981-96-8353-6_6)

Skills

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|-------------------------|---|
| Programming | Python, C++, Java, SQL |
| Research Areas | Federated Learning, XAI, NLP, LLMs, Deep Learning |
| Machine Learning | PyTorch, TensorFlow, Hugging Face, Scikit-Learn |
| Tools | Git, LaTeX, Linux, Docker, VS Code, Jupyter |
| Web Technologies | Angular, Spring Boot, Django |
| Languages | Bengali (native), English (professional) |

Selected Projects

Gesture Translator

- Developed a real-time ASL-to-English translation system using MediaPipe for hand landmark detection and a custom ML classifier; outputs recognized signs as both text and synthesized audio, enabling accessibility for non-signing users (Led to the Bangla Sign Language federated learning publication in J1). 🔄

Presentation Controller

- Built a multimodal hands-free presentation control system combining real-time hand gesture recognition (MediaPipe, OpenCV) with voice command processing (Google Speech API); implements background subtraction and adaptive position prediction for robust performance under varied environments. 🔄

Awards and Achievements

- **Vice Chancellor's Honor Award** (X 5: Fall 2023; Spring 2023; Fall 2022; Spring 2022; Spring 2021)
— An academic award for students who achieved CGPA 3.90+ in a semester.
- **Dean's Honor Award** (Fall 2021)
— An academic award for students who achieved CGPA 3.75+ in a semester.
- **ICPC-Jamilur Reza Choudhury Scholarship Award** (x3: Fall 2023; Spring 2023; Fall 2022)
— A prestigious scholarship awarded to top-performing contestants in competitive programming.

Competitive Programming

- **ICPC Asia Dhaka Regional Contestant**, 2021, 2023, and 2024
- Participated in **10+ National Programming Contests** including NCPC, IUPC (BUET, SUST, IUT, UITS), IUCPC, etc.
- Solved **2000+ problems** on online judges including Codeforces, CodeChef, AtCoder, LightOJ, UVA, SPOJ, and CSES
- **Specialist** on Codeforces and **3* Programmer** on CodeChef

Service

Co-Convenor, UAP Programming Contest Club (PCC) Jul 25 - Present
- Organize and coordinate programming contests, training sessions, workshops and mentor students preparing for ICPC and national-level programming competitions.

President, UAP Programming Contest Club (PCC) Dec 23 - Jul 24
- Led club operations, organized intra-university programming contests, and mentored members preparing for ICPC and national-level competitions.

President, Robotics Club, CSE Department Jan 24 - Jul 24
- Directed club activities including robotics workshops, and inter-university competitions.

Volunteer, 45th ICPC World Finals, Dhaka, Bangladesh Nov 22
- Assisted in operational activities at the most prestigious collegiate programming contest in the world, hosted in Bangladesh for the first time.