# Muhammad Usama Islam | Curriculum Vitae

Ph.D. Candidate (ABD) | Center for Advanced Computer Studies

The University of Louisiana at Lafayette

Room No: 208, James R. Oliver Hall, 301 E. Lewis Street, Lafayette, LA 70503, USA

Cell Phone Number: **+1-337-349-6158**; Email: **muhammad-usama.islam1@louisiana.edu**

## Summary

- Ph.D. Candidate in CS ( All But Dissertation) with **2 years of teaching experience** as a faculty, and **6 years of research experience** in information systems, healthcare informatics, UI/UX design, Human Computer Interaction, AI Administration and Adoption, AI policy with a focus on Explainable AI as demonstrated by projects and subsequent publication in reputed journals and conferences.
- Led and contributed projects in Machine Learning, Deep Learning, Design, Usability, UI and UX, Technology Adoption, and XAI to address critical and nuanced problems in healthcare, gerontology, and front-end design resulting in **25 publications** (including 6 in DIS (Google Scholar **HCI** Rank: 13, Core: A), HCII (Google Scholar **HCI** Rank: 18, Core: B), PloS One (Google Scholar **Overall** Rank: 29, Q1, IF: 2.9), IEEE Access ( Google Scholar **Overall** Rank: 20, Q1, IF: 3.4), and Diabetes Research and Clinical Practice ( Google Scholar **H&MS** Rank: 6, Q1, IF: 6.1)) and **480 citations** with h-index 12 and i-10 index 16.
- Extensive teaching experience at the university level, demonstrating teaching core **CS courses including python, software design and development, and statistics** tailored for HCI and greater techology adoption methodology domain. Comprehensive research collaboration experience with researchers and faculty members from UK, USA, South Korea, Australia, Canada, Finland, Saudi Arabia, and Bangladesh.

## Education

**University of Louisiana at Lafayette** ( R1: Top tier research university) Lafayette, LA 70504

**Ph.D. in Computer Science** **2019-2025 (Expected)**
**M.S. in Computer Science** **2019-2020**

**Courses:** Image Processing, Pattern Recognition, Information Storage and Retrieval, Computer Architecture, Operating Systems, Algorithm Design, Database and Networking

## Research Interests

Application of Large Language Models, Healthcare Informatics, Assistive Technology, Artitfical Intelligence, Human Computer Interaction, Voice Assistant Adoption, UX Design, Low-Cost Design, Gerontology, Machine Learning, Privacy Preserving ML and DL.

## Professional Experience

**University of Louisiana at Lafayette** **Louisiana, USA**
**Graduate Teaching Assistant, CACS** **Jan 2019 - To Date**

- Grader for Human Computer Interaction, Informatics, Web programming, Computer Architecture, System Design, and Applied Statistics courses at undergraduate and graduate level.
- Assisting the instructor in aforementioned course theory and lab classes.
- Assisting in curating lesson plans, course content as well as grading tests and assignments of students.

**University of Louisiana at Lafayette** **Louisiana, USA**
**Graduate Research Assistant, Data and Design Nest** **Jan 2019 - To Date**

- Conducted research experiments with usability, user experience, adoption of assistive technology and mobile games for older adults while taking into consideration UI/UX design issues followed by effects on low-income and low-literacy target group.
- Contributed in enriching methodology pertaining to technology adoption for older adults
- Curated several Quantitative and Qualitative analysis pipelines with the aid of inferential statistics and XAI based variable visualization to gather actionable insights.

**Asian University of Bangladesh** **Dhaka, Bangladesh**
**Lecturer, Department of Computer Science and Engineering** **Jan 2017 - Dec 2019**

- Designed, developed and instructed undergraduate level computer science theory and lab classes.
- As coach of AUB Programming teams, AUB ranked 50th out of 221 teams in 2018 from being unraked (200+) in 2017.
- Consistently received A+ grade from student course evaluations in all semesters.
- Received " Best Young Faculty" award by AUB for organizing and leading training sessions on robotics, programming and debating for students.
- Spearheaded the Institutional Quality Assurance Committee (IQAC) and was graded "A" by University Grants Commission (UGC) of Bangladesh in 2019.

## Selected Publications

### Book Chapters

1. Hossain, M. M., Prottoy, M. I., Morshed, M. S., Kashem, M. A., & **Islam, M. U.** (2024). IoT-Blockchain in Remote Pregnancy Care Coordination. In *Advancing Healthcare through Data-driven Innovations* (pp. 140-153). CRC Press.
2. **Islam, M. U.**, Mozaharul Mottalib, M., Hassan, M., Alam, Z. I., Zobaed, S. M., & Fazle Rabby, M. (2022). The past, present, and prospective future of xai: A comprehensive review. *Explainable Artificial Intelligence for Cyber Security: Next Generation Artificial Intelligence*, (pp. 1-29). Springer.

3. Zobaed, S. M., Hassan, M., **Islam, M. U**., & Haque, M. E. (2021). Deep learning in IOT-based healthcare applications. In *Deep Learning for Internet of Things Infrastructure* (pp. 183-200). CRC Press.
4. Hasan, M. M., **Islam, M. U.**, & Sadeq, M. J. (2022). Towards the technological adaptation of advanced farming through artificial intelligence, the internet of things, and robotics: A comprehensive overview. *Artificial Intelligence and Smart Agriculture Technology*, (pp. 21-42). Taylor and Francis.

## Journal Articles

1. Uddin, J., Platts, J., Rajan, G., Fung, W. K., Islam, S. Z., & **Islam, M. U.** (2024). Resonance Effects in Periodic and Aperiodic Lattice Structures. *IEEE Microwave Magazine*, *25*(7), 63-78.
2. Rahman, M., Islam, A., Pasha, S., **Islam, M.U**., & Alam, M. (2024). IDF23-0558 A Federated Learning Approach for Type-2 diabetes detection using a naive Bayes classifier. Diabetes Research and Clinical Practice, 209, 111538.
3. Ashraf, F. B., Akter, S., Mumu, S. H., **Islam, M. U.**, & Uddin, J. (2023). Bio-activity prediction of drug candidate compounds targeting SARS-Cov-2 using machine learning approaches. *Plos one*, *18*(9), e0288053.
4. Hasan, M. M., **Islam, M. U.,** & Uddin, J. (2023). Advanced persistent threat identification with boosting and explainable AI. *SN Computer Science*, *4*(3), 271.
5. Ashraf, F. B., **Islam, M. U.**, Kabir, M. R., & Uddin, J. (2023). Yonet: A neural network for yoga pose classification. *SN Computer Science*, *4*(2), 198.
6. Hasan, M. M., **Islam, M. U.**, Sadeq, M. J., Fung, W. K., & Uddin, J. (2023). Review on the evaluation and development of artificial intelligence for COVID-19 containment. *Sensors*, *23*(1), 527.
7. **Islam, M. U.**, & Chaudhry, B. M. (2022). A framework to enhance user experience of older adults with speech-based intelligent personal assistants. *IEEE Access*, *11*, 16683-16699.
8. Hasan, M. M., Murtaz, S. B., **Islam, M. U.**, Sadeq, M. J., & Uddin, J. (2022). Robust and efficient COVID-19 detection techniques: A machine learning approach. *PLoS One*, *17*(9), e0274538.
9. **Islam, M. U**., Hossain, M. M., & Kashem, M. A. (2021). COVFake: A word embedding coupled with LSTM approach for COVID related fake news detection. *International Journal of Computer Applications*, *174*(10), 1-5.

## Conference Proceedings

1. Chaudhry, B. M., **Islam, M. U.**, & Chawla, N. V. (2024, July). Longitudinal evaluation of casual puzzle tablet games by older adults. In *Proceedings of the 2024 ACM Designing Interactive Systems Conference* (pp. 2073-2087).
2. Rashid, M. S., Morshed, M. S., **Islam, M. U**., Rashid, S., Mahmud, A., & Islam, A. (2024, June). Mycological Examination of Microscopic Fungi Images with Deep Learning and Gradient Weighted Class Activation Mapping Visualization. In *2024 Advances in Science and Engineering Technology International Conferences (ASET)* (pp. 01-08). IEEE.
3. Nayan, N. M., Islam, A., **Islam, M. U**., Ahmed, E., Hossain, M. M., & Alam, M. Z. (2023, July). SMOTE Oversampling and Near Miss Undersampling Based Diabetes Diagnosis from Imbalanced Dataset with XAI Visualization. In *2023 IEEE Symposium on Computers and Communications (ISCC)* (pp. 1-6). IEEE.
4. **Islam, M. U.,** & Chaudhry, B. M. (2023, July). Learnability assessment of speech-based intelligent personal assistants by older adults. In *International Conference on Human-Computer Interaction* (pp. 321-347). Cham: Springer Nature Switzerland.
5. Morshed, M. S., Ahmed, S., Ahmed, T., **Islam, M. U**., & Rahman, A. A. (2022, December). Fruit quality assessment with densely connected convolutional neural network. In *2022 12th International Conference on Electrical and Computer Engineering (ICECE)* (pp. 1-4). IEEE.

6. Ashraf, F. B., Matin, A., Shafi, M. S. R., & **Islam, M. U**. (2021, December). An improved k-means clustering algorithm for multi-dimensional multi-cluster data using meta-heuristics. In *2021 24th International Conference on Computer and Information Technology (ICCIT)* (pp. 1-6). IEEE.
7. **Islam, M. U.,** & Chaudhry, B. (2021, July). DoAR: An Augmented Reality Based Door Security Prototype Application. In *International Conference on Human-Computer Interaction* (pp. 126-134). Cham: Springer International Publishing.
8. Haque, M. E., Zobaed, S. M., **Islam, M. U.**, & Areef, F. M. (2020, January). Relaxed Reorder Buffer Commit with Batch Context Switch. In *Proceedings of the International Conference on Computing Advancements* (pp. 1-5).
9. Matin, A., Bhuiyan, R. A., Shafi, S. R., Kundu, A. K., & **Islam, M. U.** (2019, May). A hybrid scheme using pca and ica based statistical feature for epileptic seizure recognition from eeg signal. In *2019 Joint 8th International Conference on Informatics, Electronics & Vision (ICIEV) and 2019 3rd International Conference on Imaging, Vision & Pattern Recognition (icIVPR)* (pp. 301-306). IEEE.
10. Haque, M. E., Zobaed, S. M., **Islam, M. U**., & Areef, F. M. (2018, December). Performance analysis of cryptographic algorithms for selecting better utilization on resource constraint devices. In *2018 21st International Conference of Computer and Information Technology (ICCIT)* (pp. 1-6). IEEE.
11. **Islam, M. U.**, Ashraf, F. B., Abir, A. I., & Mottalib, M. A. (2017, December). Polarity detection of online news articles based on sentence structure and dynamic dictionary. In *2017 20th International Conference of Computer and Information Technology (ICCIT)* (pp. 1-5). IEEE.
12. **Islam, M. U.**, Mahmud, H., Ashraf, F. B., Hossain, I., & Hasan, M. K. (2017, December). Yoga posture recognition by detecting human joint points in real time using microsoft kinect. In *2017 IEEE Region 10 humanitarian technology conference (R10-HTC)* (pp. 668-673). IEEE.

## Skills

- **Programming Skills and Softwares:** Python, C/C++, Java, SPSS, LaTeX, PLS-SEM, Jamovi.
- **Libraries:** Tensorflow, Keras, Scikit-Learn, NLTK, Numpy, Pandas, Seaborn, Statistics, SciPy, Statsmodels, matplotlib
- **Machine Learning:** Principal Component Analysis, Logistic Regression, Support Vector Machines, Decision Tree, Random Forest, Naive Bayes, XGBoost, KNN, K-Means, clustering, Hierarchical Clustering, DBSCAN, and Recommendation Algorithms.
- **Deep Learning:** CNN, RNN, MLP.
- **XAI:** LIME, SHAP.
- **Statistics:** Descriptives, Inferential Statistics, Chi-Square, Hypothesis testing, ANOVA, Structured Equation Modeling, fs/QCA, NCA, DEMATEL
- **Communication:** English (Fluent), Urdu (Beginner), Hindi ( Beginner), Arabic (Beginner), Bengali (Native).

## Awards, Honors and Scholarships

- **Academic Excellence Award** for the year 2019, 2020, 2021, 2022, 2023, and 2024 at Honors Convocation, University of Louisiana at Lafayette .
- Achieved travel grant for DIS, HCII, DESRIST conferences ( 2019-2024)
- **Bangladesh-Sweden Trust Fund Travel Grant** from Economic Relations Division (ERD), Ministry of Finance (MoF), Government of the People's Republic of Bangladesh. (2019).

- **Tuition Waiver along with Teaching Assistantship** to study graduate degree at UL. (2019)
- **OIC Tuition Waiver along with monthly stipend** to study undergraduate degree at IUT. (2013)

## Professional Certification

- Certified Supply Chain Analyst from **ISCEA**
- Microsoft Technology Associate from **Microsoft**
- Social and Behavioral Research from **CITI**

## Professional Services

### International Advisory Committee/Board Member

- 9th, 10th, 11th and 12th International Conference on Informatics, Electronics & Vision (2020-2025).

### Technical Program Committee Member

1. 4th International Conference on Imaging, Vision and Pattern Recognition (2020).
2. 5th International Conference on Imaging, Vision and Pattern Recognition (2021).
3. INTERACT (2023)
4. 2nd International Symposium on Generative AI and Education (2025)

### Reviewer

- Remote Sensing, MDPI : **H- index 144, Q1 Journal, SJR 1.28**
- Sensors MDPI : **H- index 196, Q1 Journal, SJR 0.8**
- Cryptography, MDPI AG : **H-index 12, Q2 Journal, Citescore 3.9, SJR 0.49.**
- Diagnostics, MDPI : **H-index 35, Q2 Journal, SJR 0.67, Impact factor 3.992**
- Metabolites, MDPI : **H-index 47, Q2 Journal, SJR 0.96, Impact factor 5.581**
- Mathematics, MDPI : **H-index 43, Q2 Journal, Citescore 2.9, SJR 0.54, Impact factor 2.592**
- Journal of Cyber Security Technology, **Taylor and Francis**
- International Journal of Computer and Application, **Taylor and Francis**
- PeerJ Computer Science : **H-index 28, Q2 Journal, SJR 0.61, Impact factor 2.4**
- Bulletin of Electrical Engineering and Informatics: **H-index 16, Q3 Journal, SJR 0.36, Impact factor 1.86**
- Digital Image Computing and Techniques Conference (2022)
- 9th International Conference on Informatics, Electronics & Vision (2020)
- 10th International Conference on Informatics, Electronics & Vision (2021)
- 4th International Conference on Imaging, Vision and Pattern Recognition (2020)
- 5th International Conference on Imaging, Vision and Pattern Recognition (2021)

### Others

- President, Bangladesh Student Association at UL (2018-2019)
- Member and Module-Leader, Course Moderation Committee, Department of CSE, Asian University of Bangladesh (Jan-Dec 2018)

- Student Advisor, Department of CSE, Asian University of Bangladesh, Bangladesh (Oct 2017-Dec 2018)
- Member, Organizing Committee, The ACM-ICPC Asia Dhaka Regional Contest, Bangladesh (2018)
- Programming Advisor, Competitive Programming Club, Asian University of Bangladesh, Bangladesh (2017-2018)
- Thesis-Project Examiner, Undergraduate Division, Department of CSE, Asian University of Bangladesh, Bangladesh (Jan 2017-Dec 2018)
- Treasurer, IUT Computer Society, Islamic University of Technology, Bangladesh (Jan 2015- Dec 2016)
- Vice President, IUT Robotics Society, Islamic University of Technology, Bangladesh ( Jan 2014-Dec 2016)
- Senior Manager, IUT Mars Rover, Islamic University of Technology, Bangladesh ( Jan 2015- Dec 2016)
- Senior Member, IUT Debating Society ,Islamic University of Technology, Bangladesh ( Jan 2015-Dec 2016)

## Professional Memberships

- Student Member, Institute of Electrical and Electronics Engineers (IEEE)
- Member, Association for Computer Machinery Special Interest Group on Computer- Human Interaction (ACM SIGCHI)

## References

Available upon Request