








## EDUCATION










<b>PhD in Computer Science</b> University of Massachusetts Amherst (UMass Amherst), MA, USA	Sep 2019 - Present
<b>Master of Science in Computer Science</b> University of Massachusetts Amherst (UMass Amherst), MA, USA	Feb 2024
<b>Master of Science in Electrical and Electronic Engineering</b> Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh	Jan 2021
<b>Bachelor of Science in Electrical and Electronic Engineering</b> Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh	Feb 2017

## WORK EXPERIENCE

<b>Graduate Research Assistant</b> , BioNLP Lab, UMass Amherst, MA, USA <ul style="list-style-type: none"> <li>Advisor: Professor Hong Yu</li> <li>Area of Study: Natural Language Processing, Epidemiology</li> </ul>	Jan 2020 - Present
<b>Applied Scientist Intern</b> , Machine Learning Accelerate, Amazon.com Inc., San Diego, USA <ul style="list-style-type: none"> <li>Team: MLA SPS</li> <li>Developed hallucination localization systems in LLM responses.</li> </ul>	June 2024 - Aug 2024
<b>Applied Scientist Intern</b> , Alexa AI, Amazon.com Inc., WA, USA <ul style="list-style-type: none"> <li>Team: Apex Science</li> <li>Developed a pipeline for generating multimodal content from long-form text</li> </ul>	May 2023 - Sept 2023
<b>Applied Scientist Intern</b> , Alexa AI, Amazon.com Inc., WA, USA <ul style="list-style-type: none"> <li>Team: Context Carryover (CC)</li> <li>Developed synthetic utterance similarity detection dataset and assessed its feasibility</li> </ul>	May 2022 - Sept 2022
<b>Applied Scientist Intern</b> , Alexa AI, Amazon.com Inc., WA, USA <ul style="list-style-type: none"> <li>Team: Context Carryover (CC)</li> <li>Developed tasks to minimize model hallucination for constrained contextual query rewriting (CQR)</li> </ul>	Jun 2021 - Aug 2021
<b>Machine Learning Researcher</b> , Semion Ltd., Dhaka, Bangladesh <ul style="list-style-type: none"> <li>Provided Deep Learning solutions to clients</li> <li>Designed and developed necessary software infrastructures</li> </ul>	Mar 2017 - Feb 2019
<b>Intern</b> , Semion Ltd., Dhaka, Bangladesh	Aug 2016 - Dec 2016

## SELECTED PUBLICATIONS



- A. Mitra**, K. Chen, W. Liu, R.C. Kessler, H. Yu. “Post-discharge Suicide Prediction Among US Veterans Using Natural Language Processing-enriched Social and Behavioral Determinants of Health”, npj Mental Health Research, 2025 
- C. Leon, M.L. Sung, J. I. Reisman, W. Liu, R.D. Kerns, K.S. Gordon, **A. Mitra**, S. Kwon, H. Yu, W.C. Becker, W. Li. “Occurrence of opioid related neurocognitive symptoms associated with long-term opioid therapy”, The Clinical Journal of Pain, 2025 
- M.L. Sung, C. Leon, J.I. Reisman, K.S. Gordon, R.D. Kerns, W. Li, W. Liu, **A. Mitra**, H. Yu, W.C. Becker. “Disparities in receipt of medications for opioid use disorder before and during the COVID-19 pandemic in the U.S. Veterans Health Administration”, Substance Use & Addiction Journal, 2024 
- A. Mitra**, N. Gupta, C. Naik, A. Sethy, K. Bice, Z. Raeesy. “Generating contextual images for long-form text”, LREC-COLING, 2024 
- P. Vashisht, A. Lodha, M. Maddipatla, Z. Yao, **A. Mitra**, Z. Yang, J. Wang, S. Kwon, H. Yu. “UMass-BioNLP at MEDIQA-M3G 2024: DermPrompt—A Systematic Exploration of Prompt Engineering with GPT-4V for Dermatological Diagnosis”, 6th Clinical Natural Language Processing Workshop, ACL, 2024 
- Z. Yang, **A. Mitra**, S. Kwon, H. Yu. “ClinicalMamba: A Generative Clinical Language Model on Longitudinal Clinical Notes”, 6th Clinical Natural Language Processing Workshop, ACL, 2024 
- Z. Yang, **A. Mitra**, W. Liu, D. Berlowitz, H. Yu. “TransformEHR: Transformer-based encoder-decoder generative model to enhance prediction of disease outcomes using electronic health records”, Nature Communications, 2023 

8. J. Wang, Z. Yao, **A. Mitra**, S. Osebe, Z. Yang, H. Yu. "UMASS\_BioNLP at MEDIQA-Chat 2023: Can LLMs generate high-quality synthetic note-oriented doctor-patient conversations?", 5th Clinical Natural Language Processing Workshop, ACL, 2023 
9. **A. Mitra**, R. Pradhan, R. D. Melamed, K. Chen, D. C. Hoaglin, K. L. Tucker, J. I. Reisman, Z. Yang, W. Liu, J. Tsai, H. Yu. "Associations Between Natural Language Processing Enriched Social Determinants of Health and Suicide Death Among US Veterans", JAMA Network Open, 2023 (nominated for VA Health Services Research & Development Best Paper Award 2023) 
10. Z. Yang, S. Wang, B. P. S. Rawat, **A. Mitra**, H. Yu. "Knowledge Injected Prompt Based Fine-tuning for Multi-label Few-shot ICD Coding", EMNLP Findings, 2022 
11. A. J. Rose, J. S. Lee, D. R. Berlowitz, W. Liu, **A. Mitra**, H. Yu. "Guideline-discordant dosing of direct-acting oral anticoagulants in the veterans health administration", BMC Health Services Research, 2021 
12. **A. Mitra**, H. Ahsan, W. Li, W. Liu, R. D. Kerns, J. Tsai, W. Becker, D. A. Smelson, H. Yu. "Risk Factors Associated With Nonfatal Opioid Overdose Leading to Intensive Care Unit Admission: A Cross-sectional Study", JMIR Medical Informatics, 2021 
13. H. Ahsan, E. Ohnuki, **A. Mitra**, H. Yu., "MIMIC-SBDH: A Dataset for Social and Behavioral Determinants of Health", Machine Learning for Healthcare, 2021 
14. **A. Mitra**, B. P. S. Rawat, D. McManus, H. Yu. "Relation Classification for Bleeding Events from Electronic Health Records: Exploration of Deep Learning Systems", JMIR Medical Informatics, 2021 
15. **A. Mitra**, B. P. S. Rawat, D. McManus, A. Kapoor, H. Yu. "Bleeding Entity Recognition in Electronic Health Records: A Comprehensive Analysis of End-to-End Systems", accepted at *AMIA Annual Symposium*, 2020 
16. **A. Mitra**, K. Ashraf. "Sepsis Prediction and Vital Signs Ranking in Intensive Care Unit Patients", *arXiv preprint arXiv:1812.06686*, 2018 

## SKILLS

**Programming Languages:** Python, Java, MATLAB, R, C, C++, HTML  
**Machine Learning Frameworks:** Pytorch, Tensorflow, Keras, Scikit-learn  
**Other Expertise:** L<sup>A</sup>T<sub>E</sub>X, Git, Microsoft Office, Weka, Arduino

## ACHIEVEMENTS

**449<sup>th</sup> among 2172 teams (Top 21%), Human Protein Atlas Image Classification, Kaggle**  2019  
**355<sup>th</sup> among 3234 teams (Top 11%), TGS Salt Identification challenge, Kaggle**  2018  
**Dean's List Award**, for academic excellence, BUET, Bangladesh 2013, 2017  
**2<sup>nd</sup> Runner up**, Inter-University Project Show, BUET, Bangladesh 2015  
**1<sup>st</sup> Runner up**, Inter School & College Science Festival, Rajuk College, Bangladesh 2010  
**National Level Scholarship**, Bangladesh 2003, 2006, 2009, 2011

## TEACHING EXPERIENCE

<b>Fall 2023</b>	Guest Lecturer, COMP.5800: Topics in Computer Science, UMass Lowell
<b>Fall 2020</b>	Guest Lecturer, COMP.5800: Topics in Computer Science, UMass Lowell
<b>Fall 2019</b>	Teaching Assistant, COMPSCI 121: Introduction to Computing

## SERVICES

- **Paper Reviewer**
  - EMNLP, JMIR, JMIR Medical Informatics, JMIR AI, npj Mental Health Research, BMC Pulmonary Medicine, Frontiers in Bioengineering and Biotechnology, PLOS One, AMIA annual symposium, JMIR Aging
- **MS Application Reviewer**, 2023, Manning College of Information and Computer Science, UMass Amherst
- **Mentor**
  - Mentored MS and PhD students on different NLP projects, including for COMPSCI 696DS (Spring 24, Spring 25)