SARMISTHA SARNA GOMASTA

Amherst, Massachusetts

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RESEARCH INTEREST

Mobile and Wearable Sensing and Systems, Statistical Signal Processing, Ubiquitous Computing, Privacy Preserving Machine Learning, and Human Computer Interaction.

EDUCATIONAL QUALIFICATION

University of Massachusetts, Amherst   **Sep'23 – Present**
MS/PhD in Computer Science   **CGPA: 4.0/4.0**
Advisor : Dr. Prashant Shenoy
Courses: Research Methods in Empirical Computer Science, Information Retrieval, Advanced Natural Language Processing, Advanced Algorithms, and Advanced Information Assurance.

Jahangirnagar University   **July 2022 – August 2023**
M.Sc. in Computer Science and Engineering   **CGPA: 3.98/4.0**

Jahangirnagar University   **Mar'17 – June'22**
B.Sc. in Computer Science and Engineering   **CGPA: 3.82/4.00 (Rank: 1/65)**
Thesis Dissertation: PharmaChain: Blockchain-based Drug Supply Chain Provenance Verification System

PUBLICATIONS & PREPRINTS

- Investigating How Music Affects Persuasion, Engagement, and Emotion in Data Videos. **Sarmistha Sarna Gomasta** et al. (Submitted in IEEE VIS'24).

- PharmaChain: Blockchain-based Drug Supply Chain Provenance Verification System. **Sarmistha Sarna Gomasta**, Aditi Dhali, Tahlil, Md. Musfique Anwar, A B M Shawkat Ali. Published in the proceedings of **Heliyon**, **Elsevier**.[Paper]

- AlgoCert: Adopt Non-transferable NFT for the Issuance and Verification of Educational Certificates using Algorand Blockchain. Tahlil Tahlil, **Sarmistha Sarna Gomasta**. Published in the 9th proceedings of the Asia-Pacific Conference on Computer Science and Data Engineering, Gold Coast, Australia **(CSDE-2022)**. [Paper]

- Query-oriented Topical Influential Users Detection for Top-k Trending Topics in Twitter. **Sarmistha Sarna Gomasta**, Aditi Dhali, Md. Musfique Anwar, Iqbal H. Sarker. Published in the proceedings of **Applied Intelligence**, **Springer Nature 2022**.[Paper]

- Attribute-driven Topical Influential Users Detection in Online Social Network. Aditi Dhali, **Sarmistha Sarna Gomasta**, Md. Musfique Anwar.Published in the Asia-Pacific Conference on Computer Science and Data Engineering proceedings, Gold Coast, Australia **(CSDE-2020)**. [Paper]

- Leveraging Translation For Optimal Recall: Tailoring LLM Personalization With User Profiles - **Sarmistha Sarna Gomasta***, Karthik Ravichandran*.[Arxiv Preprint]

RESEARCH EXPERIENCE

Research Assistant, University of Massachusetts, Amherst   **Sept'23– Present**
🏷: Ubiquitous Computing, Privacy Preserving Machine Learning, and Human Computer Interaction
- Working on privacy preserving acoustic features and evaluation Metrics (Work-In-Progress)
- Conduct quantitative and qualitative analyses to investigate the attitudinal impact of sound in Data Video

Algorithm Development Engineer Intern, STMicroelectronics, CA   **June'24– August'24**
🏷: Ubiquitous Computing, Multimodal Sensing, Edge Computing
- Designing novel algorithm on sensor for sleep monitoring using tinyMl and edge computing an efficient adaptive sampling algorithms

Research Assistant, The University of Fiji   **Oct'21 – Sept'22**
🏷: Decentralized Finance (DeFi), Blockchain, Supply Chain Management

- Desgin **a novel framework** based on hyperledger fabric platform to improve **drug traceability** system by preventing counterfeit pharmaceuticals.

Undergraduate Research Assistant, JU Data Mining Group   **Dec'19 – June'22**

🏷: Social Network Analysis, Information Retrieval, TwitterRank
- Design a **temporal activity biased weight model** for ranking effective influential users in social media.

SELECTED PROJECTS

In-Context-Learning (ICL) in Large Language Model ☐ | **LLM, Python**   **May'24**
- Investigated the efficacy of machine translation using ICL with pre-trained large language models (MAMBA-2.8b, Btlm-3b, Mistral-7B, Pythia-2.8B, LLama-7B) across zero-shot, two-shot, and few-shot scenarios.
- Evaluated translation accuracy using BLEU scores on the WMT-14 dataset

Human Activity Recognition Models ☐ | **Python**   **Dec'24**
- Balancing differentiability and generalizability in the feature selection process and introducing lightweight classifiers. Our accuracy is **91.4%**.

Leveraging Translation for Optimal Recall ☐ | **Python**   **Dec'24**
- Proposed integrating data augmentation approaches to query expansion to help address term mismatch problems through enhanced representation of the searcher's context.

SELECTED AWARDS & ACHIEVEMENTS

Google CSRMP Scholar'23: Awarded **Google CS Research Mentorship** for 12 weeks under the supervision of Dr. Siyan Zhao.

NST Fellowship'22 Awarded with **$600** (top 0.1%) to facilitate the B.SC. dissertation.

JU Dean's List: Awarded **scholarships** for academic excellence among 420 students from session 2017 to 2022.
NSDA' 21: National Finalist at Cloud Computing Catagory in Bangabandhu National Skills Competition.
GWOC'21: Ranked top **10%** out of 8000+ participants in **Machine learning & Data Science catagories** of GirlScript Winter of Contributing 2021.
Ada Lovelace'21: Ranked **6**[th] place in Ada Lovelace Datathon 2021 hosted by **HerWill**.
Messaging'20: Participated at the **Facebook Hackathon: Messaging 2020.**
ISWI'19: Awarded **fellowship** among 2000+ candidates from 75 countries to attend **International Student Week Ilmenau**, Germany.
IWCVIS' 19: **Best poster paper** award in International Workshop on Computer Vision and Intelligent Systems.
Hult Prize'19: Ranked **10**[th] place out of 50 teams in Hult Prize in Jahanagirnagar University.
NGPC'18: Ranked top **9%** out of 105+ teams in National Girls Programming Contest 2018.

TECHNICAL SKILLS

Languages: Python, C, C++, Solidity, SQL, HTML
Machine Learning: PyTorch, Keras, OpenCV, NLTK, Generative AI
Developer Tools: VS Code, Android Studio, LATEX, PyCharm, Jupyter Notebook, Spyder, Weka, Galago
Frameworks: Linux, AWS cloud shell
Research Skills: Interviews, Surveys, Data Analysis, Statistics, Usability Testing, A/B Testing, Data Visualization

TEACHING

Teaching Assistant | CICS'110—CICS'160 ☐   **Fall'23 – Present**
- ∗ Instruct a cohort of 70 undergrads OF Python programming language within the context of solving data-driven problems, including data types, expressions, objects, methods, program design, program testing and debugging, and state representation

Lecturer | Daffodil International University ☐   **Dec'22 – June'23**
- ∗ Instructed a cohort of 280 students in Numerical Analysis and Software Requirement Analysis, ensuring a comprehensive understanding of key concepts.

Activities & Services

Reviwer: Springer Nature, Applied Intelligence, Data in Brief.

Umass CICS Grad'24: Acted as **Social Event Coordinator** in Umass CICS graduate association.

UMASS CICS CARE'23: Mentored in **PhD Applicant Support** program.

Ju Computer Club'19: Acted as a **Assistant Program Secretary** and collected $600 Funding.