

Tunazzina Islam

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🌐 <https://tunazislam.github.io/>
Residential Status: **Permanent Resident of USA**

RESEARCH INTEREST

My research interest broadly lies in Social Media Mining and Analysis, integrating Natural Language Processing (NLP) and Computational Social Science (CSS). I focus on understanding the dynamic nature of social media content and its utilization by various interest groups for microtargeting. This involves overcoming challenges in understanding messaging tailored to specific user groups and identifying user types and motivations. I am interested in understanding microtargeting patterns on social media.

EDUCATION

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| 🎓 Purdue University Ph.D. in Computer Science (CS) <ul style="list-style-type: none"> Research Area: Social Media Mining, Computational Social Science, NLP. Advisor: Dan Goldwasser Committee Members: Ming Yin, Ruqi Zhang, Christopher W. Clifton | West Lafayette, IN <i>Jan 2019 - June 2024 (Expected)</i> |
| 🎓 Old Dominion University (ODU) M.S. in Computer Science (CS), CGPA: 3.97/4.00 <ul style="list-style-type: none"> Research Area: Bioinformatics & Computational Biology, High Performance Computing. Advisor: Desh Ranjan, Mohammad Zubair | Norfolk, VA <i>Aug 2018</i> |
| 🎓 Bangladesh University of Engineering and Technology (BUET) B.Sc. in Computer Science and Engineering (CSE) <ul style="list-style-type: none"> Thesis: Software Development of Practical Problems. Advisor: Md. Mostofa Akbar | Dhaka, Bangladesh <i>Feb 2013</i> |

WORK EXPERIENCE

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|--|----------------------------|
| Purdue University, West Lafayette, IN <ul style="list-style-type: none"> Research Assistant Teaching Assistant | <i>Jan 2019 - Present</i> |
| Old Dominion University, Norfolk, VA <ul style="list-style-type: none"> Research Assistant Teaching Assistant | <i>Aug 2015 - Aug 2018</i> |
| Dohatec New Media, Dhaka, Bangladesh <ul style="list-style-type: none"> Software Developer | <i>Mar 2013 - May 2015</i> |

AWARDS AND ACHIEVEMENTS

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| Graduate Teaching Award, CS, Purdue University. | <i>Spring 2023</i> |
| ACM-W Scholarship for attendance at ICWSM 2022. | <i>2022</i> |
| ICWSM Travel Grant. | <i>2021, 2022</i> |
| Graduate School Summer Research Grant, Graduate School, Purdue University. | <i>2021, 2022</i> |
| IJCAI Travel Grant. | <i>2019</i> |
| SIGKDD Student Travel Award. | <i>2019</i> |

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| CSGSA Travel Grant, CS, Purdue University. | 2019, 2023 |
| CRA-W Grad Cohort Travel Award. | 2016, 2019, 2020 |
| Research Assistantship, Purdue University, West Lafayette, IN. | 2021 - 2023 |
| Teaching Assistantship, Purdue University, West Lafayette, IN. | 2019 - Present |
| Fully paid International Summer School on HPC, Kobe, Japan. | 2019 |
| NSF Travel Award for attendance at SCEC Workshop, Delhi, India. | 2018 |
| Computer Science Outstanding Graduate Researcher - Fall 2017, ODU. | 2018 |
| Travel Award UM Explore Graduate Studies in CSE Workshop, Ann Arbor, MI. | 2018 |
| 2 nd prize in Tapia Student Poster Competition, Atlanta, GA. | 2017 |
| ACM Richard Tapia Scholarship. | 2016, 2017 |
| Capital Region Women in Computing (CAPWIC) Scholarship, Washington DC. | 2017 |
| Modeling and Simulation Fellowship by Old Dominion University. | 2016 - 2018 |
| GHC Scholar, Grace Hopper Celebration of Women in Computing, Houston, TX. | 2016 |
| Graduate Assistantship, Old Dominion University, Norfolk, VA. | 2015 - 2018 |
| Dean's List Award, BUET. | 2012 - 2013 |
| University Merit Scholarship, BUET. | 2012-2013 |
| Education Board Scholarship in Higher Secondary by Bangladesh Government. | 2007 - 2013 |
| Education Board Scholarship in Secondary School by Bangladesh Government. | 2005 - 2007 |
| Award from Daily Prothom Alo Newspaper for obtaining GPA 5.0 in S.S.C. | 2005 |
| Junior Scholarship in Grade 8 by Bangladesh Government. | 2002 - 2005 |
| Primary Scholarship in Grade 5 by Bangladesh Government. | 1999 - 2002 |

PUBLICATIONS

Refereed Conferences

1. **Uncovering Latent Themes of Messaging on Social Media by Integrating LLMs: A Case Study on Climate Campaigns.** [Tunazzina Islam](#), Dan Goldwasser. (Under Review)
2. **Discovering New Themes in Social Media Messaging: A Machine-in-the-Loop Approach Integrating LLMs.** [Tunazzina Islam](#), Dan Goldwasser. (Under Review)
3. **Analysis of Climate Campaigns on Social Media using Bayesian Model Averaging.** [Tunazzina Islam](#), Ruqi Zhang, Dan Goldwasser. 6th AAAI/ACM Conference on AI, Ethics, and Society 2023 (AIES-2023). [Acceptance rate: 28.9%] [Paper link] [arXiv] [Slide]
[Oral Presentation, top 11%](#)
4. **Weakly Supervised Learning for Analyzing Political Campaigns on Facebook.** [Tunazzina Islam](#), Shamik Roy, Dan Goldwasser. 17th International AAAI Conference on Web and Social Media (ICWSM-2023). [Acceptance rate: 20%] [Paper link] [arXiv] [Slide]
5. **Interactive Concept Learning for Uncovering Latent Themes in Large Text Collections.** Maria Leonor Pacheco, [Tunazzina Islam](#), Lyle Ungar, Ming Yin, Dan Goldwasser. Findings of the Association for Computational Linguistics: ACL 2023. [Paper link] [arXiv]
6. **A Holistic Framework for Analyzing the COVID-19 Vaccine Debate.** Maria Leonor Pacheco*, [Tunazzina Islam](#)*, Monal Mahajan, Andrey Shor, Ming Yin, Lyle Ungar, Dan Goldwasser. [* indicates equal contribution] Proceedings of the 2022 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL 2022). [Acceptance rate: 21%] [Paper link] [arXiv] [Slide]
7. **Understanding COVID-19 Vaccine Campaign on Facebook using Minimal Supervision.**

- Tunazzina Islam, Dan Goldwasser. 2022 IEEE International Conference on Big Data (IEEE BigData 2022). [Acceptance rate: 19.2%]. Also accepted at Workshop on NLP for Positive Impact 2022 (NLP4PI @EMNLP 2022)(Non-archival). [Paper link] [arXiv] [Slide] [Poster @NLP4PI 2022]
8. **Twitter User Representation Using Weakly Supervised Graph Embedding.** Tunazzina Islam, Dan Goldwasser. 16th International AAAI Conference on Web and Social Media (ICWSM-2022). [Acceptance rate: 20%] [Paper link] [arXiv] [Slide] [Featured as ACM-W Scholar]
 9. **Analysis of Twitter Users' Lifestyle Choices using Joint Embedding Model.** Tunazzina Islam, Dan Goldwasser. 15th International AAAI Conference on Web and Social Media (ICWSM-2021). [Acceptance rate: 20%] [Paper link] [arXiv] [Slide] [Research Highlight]
 10. **Do You Do Yoga? Understanding Twitter Users' Types and Motivations using Social and Textual Information.** Tunazzina Islam, Dan Goldwasser. 2021 IEEE 15th International Conference on Semantic Computing (ICSC 2021). [Acceptance rate: 30%] [Paper link] [arXiv] [Slide]

Refereed Workshops.....

1. **Interactively Uncovering Latent Arguments in Social Media Platforms: A Case Study on the Covid-19 Vaccine Debate.** Maria Leonor Pacheco, Tunazzina Islam, Lyle Ungar, Ming Yin, Dan Goldwasser. Fourth Workshop on Data Science with Human in the Loop: Language Advances (DaSH @EMNLP 2022). [Paper link]
2. **Does Yoga Make You Happy? Analyzing Twitter User Happiness using Textual and Temporal Information.** Tunazzina Islam, Dan Goldwasser. KDDBHI at 2020 IEEE International Conference on Big Data (IEEE BigData 2020). [Paper link] [arXiv] [Slide]
3. **Ex-Twit: Explainable Twitter Mining on Health Data.** Tunazzina Islam. 7th International Workshop on Natural Language Processing for Social Media (SocialNLP 2019) in conjunction with IJCAI 2019. [arXiv] [PDF] [Slide]
4. **Yoga-Veganism: Correlation Mining of Twitter Health Data.** Tunazzina Islam. 8th International Workshop on Issues of Sentiment Discovery and Opinion Mining (WISDOM'19) co-located with KDD 2019. [arXiv] [PDF] [Slide]

Papers related to Bioinformatics & Computational Biology.....

1. **Analysis of Subtelomeric REXTAL Assemblies Using QUAST.** Tunazzina Islam, Desh Ranjan, Eleanor Young, Ming Xiao, Mohammad Zubair, Harold Riethman. IEEE / ACM Transactions on Computational Biology and Bioinformatics (TCBB) journal, April 2019. [Paper link] [PDF]
2. **REXTAL: Regional Extension of Assemblies Using Linked-Reads.** Tunazzina Islam, Desh Ranjan, Eleanor Young, Ming Xiao, Mohammad Zubair, Harold Riethman. 14th International Symposium on Bioinformatics Research and Applications (ISBRA 2018), 63-78.
Also accepted as a poster at Grace Hopper Celebration of Women in Computing (GHC), September 2018, Houston, TX, USA. [Paper link] [PDF] [Poster @GHC 2018] [Poster PDF @GHC 2018]
3. **Nanopore Guided Assembly of Segmental Duplications near Telomeres.** Eleni Adam, Tunazzina Islam, Desh Ranjan, Harold Riethman. 19th IEEE International Conference on Bioinformatics and Bioengineering (BIBE 2019). [Paper link]
4. **Quantification of Twist from the Central Lines of β -strands.** Tunazzina Islam, Michael Poteat, Jing He. Journal of Computational Biology (JCB), January 2018, 25 (1): 114-120. [Paper link] [PDF]
5. **A Method for Characterization of β -strand Twist from a 3-Dimensional Image of a Protein.** Tunazzina Islam, Michael Poteat, Jing He. Computational Structural Bioinformatics Workshop in conjunction with 8th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2017), 650-654. [Paper link] [PDF]
6. **Protein Secondary Structure Detection using Pattern Recognition and Geometric Modeling.** Tunazzina Islam, Jing He. ACM Richard TAPIA Celebration of Diversity in Computing 2017, Atlanta, GA, USA. [Poster PDF @TAPIA 2017] [Poster @TAPIA 2017]
[Won 2nd Prize in Tapia Student Poster Competition 2017.](#)

Papers related to High Performance Computing.....

1. **A Machine Learning Approach for Efficient Parallel Simulation of Beam Dynamics on GPUs.** Kamesh Arumugam, Desh Ranjan, Mohammad Zubair, Balsa Terzic, Alexander Godunov, Tunazzina Islam. 46th International Conference on Parallel Processing (ICPP-2017), 462-471. [Paper link]
2. **Simulations of Coherent Synchrotron Radiation on Parallel Hybrid GPU/CPU Platform.** Balsa Terzić, Kamesh Arumugam, Dallan Duffin, Alexander Godunov, Tunazzina Islam, Desh Ranjan, Sukesh Sangam, Mohammad Zubair. 8th International Particle Accelerator Conference (IPAC'17), May 2017, Copenhagen, Denmark. [Poster Proceedings]
3. **Particle deposition in grid according to Particle-In-Cell (PIC) Scheme using Graphical Processing Unit (GPU).** Tunazzina Islam, Mohammad Zubair. Grace Hopper Celebration of Women in Computing (GHC), October 2016, Houston, TX, USA. [Poster PDF @GHC 2016] [Poster @GHC 2016]

TEACHING EXPERIENCE

Guest Lecture

- o Purdue University, Natural Language Processing, "Microtargeting on Social Media", Spring 2024

Teaching Assistant, Purdue University, West Lafayette, IN

- o CS 577: Natural Language Processing; Semester: Spring 2024, Spring 2023, Spring 2022
- o CS 578: Statistical Machine Learning; Semester: Fall 2023, Fall 2021
- o CS 373: Data Mining And Machine Learning; Semester: Fall 2022
- o CS 182: Foundations of Computer Science; Semester: Summer 2020, Spring 2020
- o CS 381: Introduction to the Analysis of Algorithms; Semester: Fall 2019
- o CS 251: Data Structures and Algorithms; Semester: Spring 2021, Fall 2020, Summer 2019

Teaching Assistant, Old Dominion University, Norfolk, VA

- o CS 724: High-Performance Computing and Big Data; Semester: Spring 2018, Spring 2017
- o CS 381: Introduction to Discrete Structures; Semester: Spring 2016
- o CS 270: Introduction to Computer Architecture; Semester: Fall 2016, Fall 2015

MENTORSHIP

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| Aayush Motiani, Bachelor student, CS, UC San Diego | Summer 2021 |
| Eleni Adam, Ph.D. student, CS, ODU | Fall 2018 |
| Alice T'Poteat, Staff Software Engineer, Volley | 2017-2018 |

ACADEMIC SERVICE

Conference Reviewer

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| International AAAI Conference on Web and Social Media (ICWSM) | 2022 - 2024 |
| ACL Rolling Review (ARR) | 2021 - 2024 |
| North American Chapter of the Association for Computational Linguistics (NAACL) | 2024 |
| LREC-COLING | 2024 |
| Empirical Methods in Natural Language Processing (EMNLP) | 2021 - 2023 |
| Association for Computational Linguistics (ACL) | 2021 - 2023 |
| AAAI Conference on Artificial Intelligence | 2023 - 2024 |
| International Conference on Computational Linguistics (COLING) | 2020, 2022 |
| International Conference on Social Informatics (SocInfo) | 2022 |
| HEALTHINFO | 2021 |

Workshop Reviewer

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| ACL Student Research Workshop (SRW) | 2023 |
| Student Research Workshop, NAACL | 2022 |

Journal Reviewer

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| Complementary Therapies in Clinical Practice (CTCP) | 2021 |
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Conference Volunteer

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| EMNLP student volunteer (Virtual) | 2022 |
| ICWSM student volunteer | 2022 |
| KDD student volunteer | 2019 |

Institutional Service

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| Vice President, Computer Science Graduate Student Association, Purdue University | 2022 - 2023 |
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Research Mentor

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| Lumiere Education | May - August, 2021 |
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Community Mentor

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| Commonwealth Catholic Charities (CCC) | 2016 - 2017 |
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SELECTED MEDIA COVERAGE

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| ACM Women in Computing Scholars: ACM-W Scholars 2022: Tunazzina Islam | 2022 |
| ODU CS Bi-annual Newsletter: Outstanding Graduate Researcher: Tunazzina Islam | 2018 |
| ODU CS Featured Student: Featured Student: Tunazzina Islam | 2016 |

SELECTED COURSEWORKS

- o Natural Language Processing; Probabilistic Machine Learning; Deep Learning; Data Mining; Algorithm design and analysis (Ph.D.@Purdue)
- o High Performance Computing and Big Data; Introduction to Parallel Computing; Introduction to Bioinformatics; Application of Graphs in Bioinformatics; Introduction to Networks & Communication (M.Sc.@ODU)

REFERENCES

Dan Goldwasser

Associate Professor, Computer Science, Purdue University, USA
Email: dgoldwas@purdue.edu

Lyle Ungar

Professor, Computer and Information Science, University of Pennsylvania, USA
Email: ungar@cis.upenn.edu

Ming Yin

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Ruqi Zhang

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Christopher W. Clifton

Professor and Interim Head of Computer Science, Purdue University, USA

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