

Azmine Toushik Wasi

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[Academic Website](#) | [Academic Website](#) | [LinkedIn](#) | [GitHub](#) | [Google Scholar](#) | [Semantic Scholar](#) | [Kaggle](#)

SUMMARY

I am a fourth-year undergraduate student in Industrial and Production Engineering (IPE), focusing on Graph Neural Networks, NLP, and Explainable AI, particularly in the domains of Medical AI. Additionally, I am interested in Human-Centered AI and Combinatorial Optimization, bridging the gap between Industrial Engineering and AI. My research has been published in prestigious venues such as **COLING'24, ICLR'24 Tiny Papers Track, and workshops of AAAI'24 (GCLR), NeurIPS'23 and CHI'24** (In2Writing, HEAL), with ongoing reviews in ECCV'24, IEEE TCBB, and ACL ARR'24 among others.

EDUCATION

Shahjalal University of Science and Technology

Sylhet, Bangladesh

Industrial and Production Engineering

2020-Present

- Expected to graduate in January 2025
- **Some courses related to ML:** MAT103G: Differential Calculus and Solid Geometry, MAT104G: Integral Calculus and Differential Equations, MAT207G: Vectors, Matrices and Laplace Transformation, CSE203G: Introduction to Computer Language, IPE251: Engineering Statistics, IPE321: Numerical Analysis, IPE339: Operations Research, IPE431: System Modeling and Simulation

TECHNICAL SKILLS

- **Languages:** Python (Advanced), C, C++, MATLAB, R, SQL
- **DS & ML Tools (Python):** NumPy, Pandas, Matplotlib, Seaborn, Scikitlearn, Tensorflow, PyTorch
- **Machine Learning Technique:** Statistical ML Methods, Deep Learning, Computer Vision, Graph Neural Networks, Explainable and Interpretable AI, Robust Modeling, Process Optimization etc
- **Data Science Techniques:** EDA, Experimental Design, Hypothesis Testing, Sampling and Decision making
- **Others:** GitHub, Collaborative tools (Replit, Colab, and Kaggle), Parallel and Distributed Computing

RESEARCH INTERESTS

- **Graph Neural Networks (GNN):** I am exploring Graph Neural Network or Geometric Machine Learning Theories, applying and improving GNN models and resources in Healthcare (Drugs, Proteins and Molecules) [DDI], Knowledge Graphs [BanglaAutoKG (COLING'24)] and Supply Chains [SupplyGraph (AAAI'24W)].
- **Medical AI:** In Medical AI, I am working on developing AI systems for Healthcare, mainly focusing on Computational Molecular Biology - Neuroscience, Bioinformatics, Computational Drug Discovery [CADGL], and Healthcare Optimization [Glucose level control (ICLR'24)]. I will be attending Computational Neuroscience Summer School by Neuromatch Academy in July 2024.
- **Human-Centered AI (HAI):** Despite extensive coursework in ergonomics, Human Factors Engineering (HFE), behavior studies, and psychology within our IPE curriculum, there's a notable gap in inter-disciplinary research between IPE and AI. Motivated by this, I am working on integrating HFE [AI Ownership, Individuality (CHI'24W)], Computational Social Science (CSS) [Social Biases (CHI'24W)], Fairness and Reliability [ARBEx] into AI systems, focusing on HAI perspectives of IPE.
- **Natural Language Processing (NLP):** In Natural Language Processing, I am developing [Knowledge Graphs (COLING'24)] and Bangla Knowledge Systems; motivated by NLP + GNNs. I am also working on inter-disciplinary CSS, Climate and BioMedNLP [Molecules+NLP (ICLR'24)].

RESEARCH EXPERIENCE

Undergraduate Research Assistant

November, 2022 - Present

Data Intelligence Lab, Hanyang University

Part time, Remote

- I am working on Graph Neural Networks (Theoretical GNNs + Healthcare domain) focusing on Explainable AI (Developing human understandable & trustable models) and Human Centric AI (HCI perspectives in AI research), mentored by Taki Hasan Rafi and supervised by Prof. Dong-Kyu Chae.

- Worked on 6 projects (3 accepted in COLING, ICLR and CHI-W, 3 in review); and 2 more in progress!

Student Researcher

Shahjalal University of Science and Technology

2022-Present

Part time, Remote

- I am working on Human-centric AI, Bangla NLP, and Combinational and Constrained Optimization here.
- Founded [Computational Intelligence and Operations Lab - CIOL, SUST](#) for accelerating IPE + ML combinational research through guiding and mentoring aspiring researchers (guiding 06 young individuals).
- Worked on 7 projects (6 accepted, 1 in review); and 2 more in progress!

SELECTED PUBLICATIONS

- **BanglaAutoKG: Automatic Bangla Knowledge Graph Construction with Semantic Neural Graph Filtering** | Accepted | LREC-COLING'24
Azmine Toushik Wasi, Taki Hasan Rafi, Raima Islam, Dong-Kyu Chae
- **Neural Control System for Continuous Glucose Monitoring and Maintenance**
Accepted | ICLR'24 Tiny Paper Track | [OpenReview](#) | [arXiv](#)
Azmine Toushik Wasi
- **When SMILES have Language: Drug Classification using Text Classification Methods on Drug SMILES Strings** | Accepted | ICLR'24 Tiny Paper Track | [OpenReview](#) | [arXiv](#)
Azmine Toushik Wasi, Karlo Serbetar, Raima Islam, Taki Hasan Rafi, Dong-Kyu Chae
- **SupplyGraph: A Benchmark Dataset for Supply Chain Planning using Graph Neural Networks**
Accepted | AAI'24 - [GCLR](#) Workshop | [arXiv](#)
Azmine Toushik Wasi, MD Shafikul Islam Sohan, Adipto Raihan Akib
- **LLMs as Writing Assistants: Exploring Perspectives on Sense of Ownership and Reasoning**
Accepted | CHI'24 - [In2Writing](#) Workshop
Azmine Toushik Wasi, Mst Rafia Islam, Raima Islam
- **Ink and Individuality: Crafting a Personalised Narrative in the Age of LLMs**
Accepted | CHI'24 - [In2Writing](#) Workshop
Azmine Toushik Wasi, Raima Islam, Mst Rafia Islam
- **Evaluating and Auditing Religious Bias in Large Language Models**
Accepted | CHI'24 - [HEAL](#) Workshop
Azmine Toushik Wasi, Raima Islam, Mst Rafia Islam, Taki Hasan Rafi, Dong-Kyu Chae
- **Optimizing Inventory Routing: A Decision-Focused Learning Approach using Neural Networks**
Accepted | NeurIPS'23 - New in ML Workshop | [arXiv](#)
MD Shafikul Islam Sohan, Azmine Toushik Wasi
- **Towards Reliable Facial Expression Learning**
In Review | ECCV'24
Azmine Toushik Wasi, Taki Hasan Rafi, Raima Islam, Karlo Serbetar, Dong-Kyu Chae
- **Drug Discovery using Generative Graph Neural Networks**
In Review | IEEE-TCBB
Azmine Toushik Wasi, Taki Hasan Rafi, Raima Islam, Karlo Serbetar, Dong-Kyu Chae

OTHER RESEARCH SERVICES

- **Conference or Journal Reviewer**
 - **ACL ARR** February, April 2024 [[View in official reviewer list](#)].
 - **IDC 2024** (International Conference on Interaction Design & Children).
 - **ICLR Tiny Papers** Track (2024).
 - **Complex & Intelligent Systems** [Impact factor 5.8 (2022)].
- **Workshop Program Committee**
 - **TextGraphs-17**, Graph-based Methods for Natural Language Processing, co-located with [ACL 2024](#).
 - **ClimateNLP**, Natural Language Processing meets Climate Change Workshop, co-located with [ACL 2024](#).
- **Workshop Reviewer**

- [AI4Science](#), AI for Science: Scaling in AI for Scientific Discovery Workshop, co-located with [ICML 2024](#).
- [SMM4H](#), Social Media Mining for Health Applications Workshop, co-located with [ACL 2024](#).
- [Language + Molecules](#) Workshop, co-located with [ACL 2024](#).
- [KALLM](#), Knowledge Graphs And Large Language Models Workshop, co-located with [ACL 2024](#).

ACHIEVEMENTS

- Received **ICLR 2024 Travel Award**, along with complimentary in-person full conference registration.
- **Finalist (Top 4)** of ProcessMiner QCRE Data Challenge, **IISE Global Conference and Expo, 2023** — [Report](#)
- **Kaggle Notebooks Grandmaster** (Highest Rank: 36th globally) Datasets & Discussions Master
- GDN Presenta - Champion | Podiam 1.0 - 2nd Runners Up
- National High School Programming Contest 2016 , 2017 – Regional Winner; National Top 30 in both
- Inter School & College Programming Contest 2019 – Regional(3rd)- National Top 30
- National Earth Science Olympiad 2019 – National Winner
- National Chemistry Olympiad 2019 – 1st (Regional)
- National Physics Olympiad 2019 – 5th (Regional)
- The Queens Commonwealth Essay competition 2019 – Silver Award

PROJECTS AND TUTORIAL BLOGS

- **ML Learning Hub: Online ML University** | [GitHub](#)
A curated list of FREE courses available online from top universities of the world on CS-DS-ML.
- **Paper Reviews, Organization and Collection**
Awesome ICLR 2024 Graph Paper Collection ([GitHub](#)) | Awesome ICLR 2024 LLM Paper Collection ([GitHub](#))
- **Bias-Variance Tradeoff —Tutorial with NumPy & Seaborn** | [Kaggle](#)
A brief tutoial on Bias-Variance Tradeoff. Used pandas, numpy, seaborn, Scikitlearn.
- **Divorce Prediction & Reasons : Machine Interpretation Analysis with XGB, SHAP, RFE** | [Kaggle](#) | [Kaggle XAI Spotlight Newsletter](#)
A detailed exploratory data analysis of Divorce with necessaey Viz. Predicted with XGBoost. Then, analyzed featured for PCA. Used pandas, numpy, seaborn, xgboost, shap, scikit-learn.
- **Time Series Analysis and Forecasting** | [Kaggle](#)
A detailed blog tutorial on different time series analysis methods and examples.

WORK EXPERIENCE

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| Project Executive
<i>10 Minute School</i> | March, 2022 – October, 2023
<i>Part time, Hybrid</i> |
| <ul style="list-style-type: none"> • Developed 30+ Automation tools for content development and quality control automation using Python & ML (NLP, CV) Techniques, increasing productivity and quality by 500%-1000%. • Developed and maintained 180+ interconnected google sheets for multiple projects Developed 22K+ educational and promotional contents. • Worked in 50+ different projects Led 35+ project segments. • Led and managed 04 teams with 15+ individuals in different projects for 1 year. | |
| Live-Class Team Resource Executive
<i>Shikho Technologies</i> | September, 2021 – February, 2022
<i>Part time, Remote</i> |
| <ul style="list-style-type: none"> • Created and quality assured over 480 educational materials | |
| Manager of Research and Development
<i>BasaKhujo</i> | 2021-2023
<i>Self Employed, Remote</i> |
| <ul style="list-style-type: none"> • Mangaged in product research, market analysis, product development, and deployment, while also contributing to analytics refinement and growth monitoring with optimized metrics for cross-validation. | |

TRAINING PROGRAMS

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|--|-------------------------------|
| Computational Neuroscience Summer School
<i>Neuromatch Academy</i> | July 2024
<i>Remote</i> |
| <ul style="list-style-type: none"> • This curriculum emphasizes code-first, hands-on learning by integrating machine learning and causality research into neuroscience modeling. It covers basic to advanced modeling techniques, including machine learning, deep learning, biologically plausible dynamical systems, stochastic processes, measurement insights, and methods for dynamic system control using optimal control and reinforcement learning. | |
| CCAI Summer School 2024
<i>Climate Change AI</i> | Jun-Aug 2024
<i>Remote</i> |

- After completing the program, I will gain practical experience in applying AI to various climate-related fields and developed a good understanding of the ethical, regulatory, and environmental implications of AI technology in addressing climate challenges.

Aspire Leaders Program 2023

Apr-Sept 2023

Aspire Institute Inc., Harvard university

Remote

- Participated in a rigorous leadership development program at one of the world's most prestigious universities, gaining invaluable skills and knowledge in areas such as decision-making, strategic planning, team management, communication, conflict resolution, project management, and cross-functional collaboration through participation in various program activities and projects.

OTHER TECHNICAL AND SOFT SKILLS

- **Office Suites:** MS Word, MS PowerPoint, MS Excel, Google G-Suite
- **Writing Skills:** Creative Writing, Technical Writing, Copywriting, SEO
- **Design and Multimedia:** Adobe Illustrator, Adobe Photoshop, Video Editing
- **Soft Skills:** Creativity, Management, Communication, Teamwork, Decision Making, Conflict Resolution, Delegation, Motivation, Communication, Team Building, Time Management, Goal Setting, Coaching, Collaboration, Problem Solving, Adaptability, Emotional Intelligence

ORGANIZATIONAL/VOLUNTARY EXPERIENCE

- **Founder and Director** at *Computational Intelligence and Operations Lab – CIOL* (2022 - Present)
 - I founded CIOL to accelerate IPE-AI combinational research at SUST-IPE, filling up the current gap of ML-focused research in the department. Collaborating with our seniors, we ensure that the lab is well-equipped with the necessary resources and expertise; and actively involved in different research projects.
- **Product Tester** at *DeepLearning.AI* (May 2023 - Present)
 - Testing DeepLearning.AI courses, providing suggestions for improvement.
 - Worked on [Probability & Statistics for Machine Learning and Data Science](#) of Mathematics for Machine Learning Specialization.
- **Pie & Ai Ambassador** at *DeepLearning.AI* (October 2022 - Present)
 - Arranged and took several workshop and meetups.
 - Trained Python and latest ML Technologies over 300+ individuals from different background.
- **Wing Director, Technical Facilities Enhancement** at *Black Brains* (Sept. 2021 - Jan. 2022)
- **Executive Officer (Technology, Curriculum, and Research)** at *Black Brains* (Joined Nov 15, 2020)
 - Development of [Black Brains Office Assistant](#) App.
 - Developing Black Brains Micro-courses (Curriculum, Content Design, Course Assessments Design, App Integration, Database and Overall administration)
 - Database design and management. Regular technical research, analysis and development. Website & App maintainance.
- **Information Technology Manager** at *Bangladesh Youngster Social Organisation* (Jan 2019 - Oct 2021)
 - Managing Program-related IT Support stuffs and tasks
 - BYSO - App Development for android platform with Top #3 ranking in communications app in PlayStore. Created Central Database, and necessary management tools. Developed IT Structure for the organization and increased productivity.
- **Judge** at *The Queen's Commonwealth Essay Competition 2021* (July 2021)
 - The QCEC is the world's oldest international writing competition for schools, established in 1883. This year QCEC received about 26,000 submissions from all the commonwealth countries.
- **Feature Writer & Content Developer** at *Tachyon* (June 2021 - 2022)
 - Wrote several features on programming, data science, and Machine Learning. Also, developed several visual contents on different programming topics. URL: <https://tachyonts.com/>
- **Online Volunteer** at *United Nations Volunteers* (July 2020 - April 2021)
 - Supporting in many roles as Content Writer, Graphics Designer, Translator etc in various projects.
- **C Programming Mentor** at *IPSC Programming Club* (2016-2017)
 - Trained aspiring programmers of the club for National High School Programming Contest.

TALKS AND TRAINING WORKSHOPS TAKRN

- **Pie & AI: Sylhet - ML Research for Engineering Undergrads: A Pathway** | Oct 23, 2023 | Workshop
- **Introduction to Research (IPE and ML Focused)** | Sept 8, 2023 | Workshop
- **Navigating the Digital Frontier | Building the Basics on ML and AI** | Aug 25, 2023 | Guest Talk
- **Building AI and Machine Learning Model: How to Start?** | Jul 23, 2023 | Workshop

- **Pie & AI: Sylhet - Use of ChatGPT and Generative AIs** | Mar 3, 2023 | Guest Lecture
- **Pie & AI: Sylhet – Machine Learning for Engineering Students** | Jan 25, 2023 | Talk
- **Pie & AI: Sylhet - Introduction to Python for AI** | Oct 15-22, 2023 | Workshop

LEARNING AND CERTIFICATIONS

Forage - Virtual Internships

Data@ANZ Program - ANZ, Open-Access Data Science & Advanced Analytics Virtual Experience Program - BCG, Careers in Tech Program - Commonwealth Bank, Engineering: Undergraduate & Masters Asia Virtual Experience Program, Digital Technology Data Analytics Program - General Electric, Engineering Virtual Program - Goldman Sachs

Coursera Professional Certificates

DeepLearning.AI TensorFlow Developer, SAS Visual Business Analytics

Google Career Certificates (Coursera)

Data Analyst, Advanced Data Analyst, BI Analyst, IT Automation with Python, IT Support Professional, Project Management

DataCamp Learning Paths

Career Tracks: Python Programmer, Machine Learning Scientist with Python, Data Analyst with Python, Data Scientist with Python

Coursera Specializations

Machine Learning Specialization, Deep Learning Specialization, Natural Language Processing Specialization, TensorFlow: Advanced Techniques Specialization, Generative Adversarial Networks (GANs) Specialization - from DeepLearning.ai; Python for Everybody, Data Science Fundamentals, Python 3 Programming, Applied Data Science with Python, Supply Chain Management, Project Management Principles and Practices