

Md Zahidul Islam

POST DOCTORAL RESEARCH FELLOW, CSIRO (RESEARCH FOCUSING DEEP GRAPH NEURAL NETWORK MODELLING OF SPARSE SPATIOTEMPORAL DATA)

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Over ten years of academic and industry experience. Machine learning researcher with over 3 years of hands on experience in designing and implementation of insight and analytic tools and predictive models. Experienced with graph neural network, recurrent neural network and explainable machine learning. A very good team player with proven ability to work with diverse stakeholders and teams to drive results.

Education

CSIRO (Commonwealth Scientific and Industrial Research Organisation) Australia

Brisbane, Australia

POST DOCTORAL RESEARCH FELLOW - MACHINE LEARNING AND AI FUTURE SCIENCE PLATFORM

Nov. 2020 - Present

- Spearheaded research projects that integrate advanced machine learning techniques into practical applications.
- Developed an innovative spatiotemporal prediction model combining recurrent neural networks (RNNs) and graph neural networks (GNNs).
- Developed explainability methods to draw insights from complex neural architectures.
- Three research papers are in preparation for top-tier conferences/journals.
- Interruptions: parental leave from 10/05/2022 to 06/06/2022.

MAIN RESEARCH PROJECTS:

- Advanced deep neural network modelling involving graph neural network, recurrent neural network and zero-inflated Poisson distribution for pest abundance estimation from sparse spatiotemporal observations.
- Development of machine learning based estimation model for conservation actions.
- Addressing bias and fairness in machine learning in collaboration with social scientists.

UniSA (University of South Australia)

Adelaide, SA

PHD IN COMPUTER AND INFORMATION SCIENCE

Sep. 2016 - Nov. 2020

- Pioneered research in text analysis using evidence-based ensemble methods.
- Devised novel ensemble techniques integrating explainable machine learning model that significantly improved the accuracy of text analysis tasks.
- Published three research papers in reputable conferences including PAKDD, CIKM and SIGIR.

StFX (St. Francis Xavier University)

Antigonish, NS, Canada

MS IN COMPUTER SCIENCE

Sep. 2009 - Apr. 2012

- Thesis topic: healthcare workflow verification using tableau method for computation tree logic.
- Explored healthcare workflow optimization through formal logic methods.

Khulna University

Khulna, Bangladesh

B.Sc. IN COMPUTER SCIENCE AND ENGINEERING

Sep. 2002 - Oct. 2006

- Thesis topic: resource management in grid computing environment.
- Explored efficient resource allocation strategies in distributed computing.

Industry Experience

Dot Net Explorer Ltd. (Remote Job)

Khulna, Bangladesh

WEB DEVELOPER | SOFTWARE ENGINEER | SENIOR SOFTWARE ENGINEER

Apr 2007 - Mar 2016

- Led project estimation, tool selection, and technical planning to ensure timely project delivery.
- Collaborated with clients and Project Managers to refine graphic designs and provide technical solutions.
- Developed web-based applications aligned with user requirements and specifications.
- Produced technical documentation and operational procedures, facilitating effective project execution.

European Union Technical Assistance

Khulna, Bangladesh

MIS EXPERT

Dec 2014 - Apr 2015

- Contributed to the "Sundarbans Environmental And Livelihoods Security (SEALS)" project in collaboration with the European Union.
- Developed the Sundarbans Management Information System (SMIST) to meet the requirements of the Bangladesh Forest Department.
- Produced customized reports using SMIST data to fulfill the needs of Forest officials.

Academic Experience

Data Analytics Group, UniSA

Adelaide, SA

RESEARCH ASSISTANT AND PHD CANDIDATE

August 2016 - present

- Defining, designing and executing research project scope and technical priorities.
- Finding research gaps in the existing literature regarding ensemble methods and addressing those gaps using innovative mathematical techniques.
- Writing high quality, high level and detailed architectures of machine learning based models.
- Demonstrated exceptional written and communication skills and the ability to present insights in simple terms.

UniSA Online

Adelaide, SA

ONLINE TUTOR

Jan 2019 - present

- Helping students to understand concepts through online forums, emails and online drop-in sessions.
- Conducting regular drop-in sessions on critical topics.
- Marking students assessments and exams.

School of Information Technology and Mathematical Sciences, UniSA

Adelaide, SA

TUTOR

Feb 2018 - July 2018

- Conduct practical sessions to help students learning.
- Marking students assessments and exams.

Computer Science and Engg. Discipline

Khulna University, Bangladesh

ASSISTANT PROFESSOR

Feb 2012 - Jul 2016

- Taught undergrad courses of Computer Science.
- Responsible for conducting lectures, examinations, assignments, and marking. Some courses that I taught include - Computer Fundamental, Structured Programming, Data Structure, Computer Organization, Database, Data Mining etc.
- Supervision of undergraduate research and project students.

Computer Science and Engg. Discipline

Khulna University, Bangladesh

LECTURER

Sep 2008 - Sep 2009

- Taught undergrad courses of Computer Science. Responsible for conducting lectures, examinations, assignments, and marking.
- Conducted programming tutorial sessions for the students.
- Worked as organizer of seminars and workshops at the discipline.

Center for Logic and Information, St. Francis Xavier University

NS, Canada

RESEARCH AND TEACHING ASSISTANT

Sep. 2009 - Feb. 2012

- Researched formal verification techniques for healthcare workflows.
- Implemented a prototype healthcare workflow verification framework using the tableau method for Computation Tree Logic (CTL).
- Conducted practical tutorials for undergraduate courses.

Publications

2023 In progress: "Predicting spatiotemporal abundance of hard-to-detect pests using deep learning."

2023 In progress: "Predicting cost of conservation actions using machine learning."

2023 In progress: "Ethos and Vision: Designing a Charter for Inter-disciplinary Collaboration between AIML and the Social Sciences."

2022 Khondker Mohammad Zobair, Louis Sanzogni, Luke Houghton, **Md. Zahidul Islam**, "Combining Deep Neural Network and PLS-SEM to Predict Patients' Continuity with Telemedicine", in International Journal of Information Technology & Decision Making.

2021 Khondker Mohammad Zobair, Louis Sanzogni, Luke Houghton, **Md. Zahidul Islam**, "Forecasting care seekers satisfaction with telemedicine using machine learning and structural equation modeling", in PLOS ONE.

2020 **Md. Zahidul Islam**, Jixue Liu, Jiuyong Li, Lin Liu, Wei Kang, "Evidence Weighted Tree Ensembles for Text Classification", in SIGIR 2020, Xi'an, China.

2019 **Md. Zahidul Islam**, Jixue Liu, Lin Liu, Jiuyong Li, Wei Kang, "Semantics Aware Random Forest", in CIKM 2019, Beijing, China.

2019 **Md. Zahidul Islam**, Jixue Liu, Lin Liu, Jiuyong Li, Wei Kang, "Semantic Explanations in Ensemble Learning", in PAKDD 2019, Macau, China.

Others <https://bit.ly/2SIqwyX>

Skills

Machine learning	Deep Neural Network - PyTorch, Natural Language Processing - NLTK, Hugging Face, SpaCy, Optuna, AX
Data analysis	Hypothesis testing, SciPy, sklearn, Plotly, Jupyter, Power BI, Orange, Rapid Miner, Weka, SAS
Programming	Python, C/C++, JAVA, R (intermediate), SQL, MySQL, VB.NET, C#.NET, VB6
Web	HTML5, CSS3, ASP.NET, PHP, JavaScript

Conferences, Workshops and Training

Advanced Time-Series Modelling and Forecasting

Brisbane, Australia

ORGANIZED BY CSIRO

Creating Dashboards and GUIs Using Streamlit

Brisbane, Australia

ORGANIZED BY ENVIRONMENT BU

Modern Geospatial Machine Learning

Brisbane, Australia

ORGANIZED BY ENVIRONMENT (FORMER LAND AND WATER) BU

Modern Geospatial Machine Learning

Brisbane, Australia

ORGANIZED BY ENVIRONMENT (FORMER LAND AND WATER) BU

Statistical analysis using R

Mawsonlakes, SA

ORGANIZED BY ITEE UniSA

Topics: Intro to R. Data types, basic visualisations using R and summary measures, normal distributions, one-sample z-tests, t-tests, confidence intervals, two-sample hypothesis tests, non-parametric hypothesis testing for one- and two-samples. Working with categorical data (visualisations, contingency tables & chi-squared tests).

Embedded system development

Dhaka, Bangladesh

ORGANIZED BY BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)

Developed the tabulation system of Khulna University.

Khulna, Bangladesh

CSE DISCIPLINE

This system is developed following the universal grading system defined by UGC and is being used by all departments of Khulna University for result preparation.

Training program on Object Oriented Programming (OOP)

Dhaka, Bangladesh

ORGANIZED BY BANGLADESH ASSOCIATION OF SOFTWARE AND INFORMATION SERVICES (BASIS).

Topics: Object Oriented Programming (OOP) Fundamental, .NET Programming (C#, ASP.NET), Test driven programming fundamentals with NUnit, Database fundamentals (MSSQL), basic UML, Software development methodology (Waterfall, Agile). I achieved the first position in the course with 86% marks.

Honors & Awards

2023	Non cash reward for contributing to MARS conference 2023 , CSIRO	<i>Brisbane, QLD</i>
2020	Student Trave Grant , SIGIR 2020	<i>Xi'an, China</i>
2019	Student Trave Grant , CIKM 2019	<i>Beijing, China</i>
2019	Student Trave Grant , PAKDD 2019	<i>Macau, China</i>
2016	Postgraduate Research Award , University of South Australia	<i>UniSA</i>
2016	D2D CRC Scholarship , Data to Decisions	<i>Adelaide, SA</i>
2013	Co-Investigator , Research grant for a project titled-"Designing an automated land taxation system for Khulna city". Sponsor - Ministry of Science and Technology, Governemnt of Bangladesh.	<i>Khulna, Bangladesh</i>
2009	Graduate research fellowship , From the Atlantic Canada Opportunities Agency (ACOA)	<i>Canada</i>
2009	Teaching assistantship , From the Dean of Sciences, St.FX University.	<i>Antigonish, Canada</i>
2007	4th rank with distinction in B.Sc. , Computer Science and Engineering, Khulna University.	<i>Bangladesh</i>
2002-06	Dean's List in undergraduate study , SET School, Khulna University.	<i>Bangladesh</i>
2002-06	Khulna University merit scholarship , For excellent performance in undergraduate study.	<i>Khulna, Bangladesh</i>
2002-06	Board Scholarship , Government of Bangladesh	<i>Khulna, Bangladesh</i>
2001	10th Merit Position among 180,000 examinees , In Higher Secondary Certificate Examination (equivalent to High School Graduation)	<i>Jessore Education Board, Bangladesh</i>

Program Committees

2023	PC Member , Thirty-Eighth AAAI Conference on Artificial Intelligence	<i>Vancouver, Canada</i>
2023	PC Member , The 15th Asian Conference on Machine Learning	<i>Istanbul, Turkey</i>
2022	PC Member , The 20th Australasian Data Mining Conference	<i>Sydney, NSW</i>
2021	PC Member , The 19th Australasian Data Mining Conference	<i>Brisbane, QLD</i>
2020	PC Member , The 18th Australasian Data Mining Conference	<i>Canberra, ACT</i>
2020	PC Member , IEEE Symposium Series on Computational Intelligence (SSCI)	<i>Canberra, ACT</i>
2019	PC Member , The 17th Australasian Data Mining Conference	<i>Adelaide, SA</i>
2019	PC Member , The 32nd Australasian Joint Conference on Artificial Intelligence	<i>Adelaide, SA</i>