Md. Jumar **Alam**

Graduate Student · Researcher

204-543 Rowcliffe Ave, Kelowna, BC, Canada

+1 (236) 338-1238 | jumar.alam@ubc.ca | jumaralam.github.io/ | JumarAlam | jumaralam

Summary

Pursuing a Master of Science in Computer Science and working as a Graduate Teaching Assistant and Research Assistant, contributing to academia. Previously, served as a Lab Instructor and Undergraduate Teaching Assistant and worked as a Research Intern. Linux enthusiast with strong basics, skills, logical and analytical ability, and exploration potential. Fluent in Procedural, Object-Oriented, and Declarative programming languages and dedicated to devising effective problem-solving methods in the fields of Software Engineering, Machine Learning, and Data Science. Proud team player and have a strong ability to blend in multi-disciplinary and vibrant environments.

Key Skills

Programming Languages	Python, C, C++, Java, R & Octave.
Frameworks & Libraries	Keras, Tensorflow, PyTorch, Pandas, Matplotlib, OpenCV, Scikit learn etc.
Operating Systems	Linux, Windows & MacOS.
Back-end	Django, MySQL, PostgreSQL, Oracle, Amazon RDS, Redshift, MongoDB, CosmosDB, Neo4j, InfluxDB etc.
Front-end	HTML5, CSS3 & Bootstrap.
Others	Git, Slack, Trello, MS Power BI, MS Office, SAS, LaTeX etc.

Education

Master of Science in Computer Science

University of British Columbia, Kelowna, BC, Canada — *Jan. 2022 - Present*

- **Thesis Topic:** Code Clone and Bug Propagation in Software Development.

Bachelor of Science in Computer Science and Engineering

North South University, Dhaka, Bangladesh — *Jan. 2016 - Dec. 2019*

- CGPA: 3.82 out of 4.00 (With Summa Cum Laude Distinction Award).

Academic Experiences

Graduate Research Assistant — *Kelowna, BC, Canada*

Department of Computer Science, Irving K. Barber Faculty of Science, UBC — *Jan. 2022 - Present*

- Currently conducting innovative research under the supervision of Dr. Fatemeh Hendijani Fard, focusing on **Code Representation Learning**. Actively proposing and implementing **Large Language Models**, collaborating with peers, staying updated on the latest developments, contributing valuable insights to the research community and making substantial progress in understanding and enhancing Code Representation Learning.

Graduate Teaching Assistant — *Kelowna, BC, Canada*

Department of Computer Science, Irving K. Barber Faculty of Science, UBC — *Jan. 2022 - Present*

- Managed and coordinated the Computer Programming I **(Java)** course to **250** students, implemented interactive teaching methods, and received positive feedback for fostering a dynamic learning environment, resulting in improved student performance.
- Contributed as a TA for **Introduction to Data Analytics and Machine Architecture** course to **60** students, facilitated learning through tutorials and one-on-one assistance, and was recognized for consistently enhancing student engagement and understanding in data analytics and machine architecture.

Lab Instructor — *Dhaka, Bangladesh*

Department of Electrical and Computer Engineering, North South University — *Jan. 2020 - Dec. 2021*

- Delivered impactful lab instruction to over **400** students in **Database Management System (MySQL), Programming Language I (C Programming), Digital Logic Design, and Computer Architecture and Organization**. Conducted exams, executed comprehensive assessments of course-related term projects, and provided individualized guidance during office hours, fostering a conducive learning environment and promoting academic excellence.

Undergraduate Teaching Assistant — *Dhaka, Bangladesh*

Department of Electrical and Computer Engineering, North South University — *Jan. - Dec. 2019, Sep. - Dec. 2020*

- Supported faculty in **Data Structure and Algorithm, Computer Architecture and Organization, and Digital Logic Design courses**. Prepared comprehensive course materials, conducted exam hall invigilation, and provided valuable counselling to students during office hours, contributing to an effective learning environment and student success.

Professional Experiences

Research Intern — *Dhaka, Bangladesh*

Pathao Ltd. — *Oct. 2019 - Jan. 2020*

- Collaborated with the **Product department** and the **Food team** to forecast expectations and analyze customer demands. Applied analytical skills to detect anomalies, optimize shortest routes, and generated detailed reports for the **Map team**. Additionally, I played a key role within the Map team, contributing to developing an in-house mapping solution aimed at replacing Google Maps for ride-sharing, parcel, and food services. This initiative resulted in significant cost savings for the company annually, showcasing a proactive approach toward operational efficiency and financial optimization.

Research Interest

- **Computer Vision**
- **Machine Learning**
- **Natural Language Processing**
- **Human-Computer Interaction**

Academic Researches

Bengali Automatic Speech Recognition with RNN-Transducer

CSE499 - Undergraduate Dissertation *Jan. 2019 - Aug. 2019*

- Pioneered the exploration of the **Recurrent Neural Network Transducer (RNN-Transducer)** model for **Bengali speech recognition**, marking a groundbreaking endeavor in this domain. This research is still in motion for further accuracy.

Bengali Image Captioning with Attention and Pretrained Decoder

CSE468 - Computer Vision Research Project *Jan. 2019 - Apr. 2019*

- Explored the fusion of a modified **ResNet152 encoder, attention mechanism, and a pretrained decoder** on **OpenSLR** data to seamlessly generate accurate captions for images within both **Indian subcontinental and Western** contexts. This research represents a tailored approach to image captioning, acknowledging and adapting to diverse cultural and contextual nuances.

Forecasting The Price of Crude Oil, Gas, Gold and Different Currencies in USD.

CSE498R - Co-op Research Project *May. 2019 - Aug. 2019*

- Executed a comprehensive exploration into financial forecasting, leveraging a spectrum of machine learning algorithms and esteemed time series forecasting methods. The objective wasn't just prediction but achieving the pinnacle of accuracy in forecasting the prices of **Crude Oil, Gas, Gold, and various currencies in USD**.

Automatic English Text Summarization

CSE299 - Junior Design Research Project *Sep. 2018 - Dec. 2018*

- Undertook the challenge of developing an automatic text summarizer for English content. Employed a cutting-edge approach by utilizing **Bidirectional LSTM with Residual Connection** in a sequence-to-sequence framework. Executed the development and evaluation process on extensive **DUC2003 and DUC2004** news article datasets, assessing the model's proficiency in generating concise and informative news article headlines through text summarization. This effort marked a significant contribution to the field of achieving excellence in text summarization research.

Notable Projects

Student Advisor System

CSE327: Software Engineering *Sep. 2019*

- Led the creation of a University Expert System powered by an **Inference Engine**, offering personalized recommendations for courses, retakes, and class timings. Developed a comprehensive solution enabling students to view their entire graduation path and calculate CGPA, contributing to an enhanced and automated student advisory experience.
- **Tools/Technology:** Django, Tornado, jQuery, and Keras.
- Github Link: https://github.com/JumarAlam/CSE-327

12-bit Single Cycle RISC-based Processor

CSE332: Computer Architecture & Organization *May. 2018*

- Engineered a complete 12-bit single-cycle RISC-based CPU, encompassing the design of Instruction Set Architectures (ISA), Assembler, and Data-path. Innovated a custom ISA and developed a C++ assembler to seamlessly convert assembly code into machine code, showcasing a comprehensive and functional processor simulation.
- **Tools/Technology:** C++, Assembly Language and Logisim.
- Github Link: https://github.com/JumarAlam/12Bit-Single-Cycle-Processor

Food Canvas - An Online Food Ordering and Restaurant Reservation Web Application

CSE311: Database Management System *January. 2018*

- Conceived and developed a comprehensive web service, "Food Canvas," with a dual focus on facilitating online food orders and restaurant reservations. Leveraged the **CodeIgniter** framework to seamlessly integrate the front-end with a MySQL database, resulting in a robust and user-friendly platform for customers to interact with restaurants and streamline their dining experiences.
- **Tools/Technology:** CodeIgniter, MySQL, Bootstrap, JavaScript, HTML and CSS.

Awards & Achievements

2020 **Summa Cum Laude,** For Academic Excellence in Undergraduate Level.

2019 **4th,** Innovation challenge-8 competition (Capstone Project Showcase).

2019 **9th,** EvalAI TrackingNet Object Tracking Challenge.

2019 **75% Scholarship on Tuition Fees,** In Recognition of Excellent Academic Performances.

2018 **50% Scholarship on Tuition Fees,** In Recognition of Excellent Academic Performances.

2017 **25% Scholarship on Tuition Fees,** In Recognition of Excellent Academic Performances.