

Krishno Dey

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Research Interests

Natural Language Processing, Generative AI, Machine Learning, Deep Learning, Computer Vision

Employment History

Sep 2023 – Present

📌 **Research Assistant,**

SE+AI Lab

Faculty of Computer Science

University of New Brunswick, Fredericton.

Duties: Study, design, and implement CLI applications to assess the linguistic quality of APIs.

📌 **Teaching Assistant,**

Faculty of Computer Science

University of New Brunswick, Fredericton.

Duties: Conducting tutorials, lab help, Grading, and running help sessions for students.

Courses: Programming and Problem Solving for Engineers, Systems Analysis Design and Project Management

Jan 2022 – Present

📌 **Lecturer (On Study Leave),**

Department of Computer Science and Engineering

Faculty of Science, Information, and Technology

Daffodil International University, Dhaka.

Duties: Teach undergrad courses, research, and departmental services.

Courses (selective) Taught: Programming and Problem Solving, Artificial Intelligence, Big Data and IoT, Operating System, Simulation and Modeling, Computer Graphics, and Introduction to Bio-informatics.

Research: Collaboration with other faculty members and supervising undergraduate students with their thesis works.

Feb 2021 – Dec 2021

📌 **Teaching Apprentice Fellow and Teaching Assistant,**

Department of Computer Science and Engineering

Faculty of Science, Information, and Technology

Daffodil International University, Dhaka.

Duties: Conducting lectures and tutorials, lab help, Grading, and running help sessions for students.

Courses: Programming and Problem Solving, Software Development Methodology, and Software Project Management.

Research: Collaboration with faculty members, and students, and help undergraduate students with thesis works, report writing, etc.

Educational Qualifications

Sep 2023 – Apr 2025	<div><div></div><div>M.Sc. Computer Science. Thesis Topic: <i>Syntactic and Semantic Analysis of REST and GraphQL APIs to Assess their Linguistic Design Quality.</i> Supervisor: Francis Palma(PhD), Assistant Professor Faculty of Computer Science University of New Brunswick, Fredericton CGPA: 4.2 out of 4.3</div></div>
Jan 2017 – Mar 2021	<div><div></div><div>B.Sc. Computer Science and Engineering. Thesis Title: <i>Bangladeshi Indigenous Fish Classification using Convolutional Neural Networks.</i> Supervisor: Most. Hasna Hena, Assistant Professor Faculty of Science, Information and Technology Daffodil International University, Dhaka. CGPA: 3.92 out of 4</div></div>

Technical Skills

ML/NLP/Vision	<div><div></div><div>PyTorch, Keras, Transformers, LM-Harness, LLMeBench, OpenNMT, Sci-kit Learn, NLTK, OpenCV.</div></div>
LLMs Explored	<div><div></div><div>GPT-4, GPT-3.5, Falcon, Gemini, Llama 2, Llama 3.</div></div>
Programming	<div><div></div><div>C, C++, Python, PHP, Java.</div></div>
Web Dev	<div><div></div><div>HTML, CSS, Bootstraps, JavaScript, jQuery.</div></div>
Databases	<div><div></div><div>SQL Server, MySQL, SQLite, Firebase.</div></div>
Environments	<div><div></div><div>Microsoft Visual Studio, PyCharm, Jupyter Notebooks, Eclipse.</div></div>
Operating Systems	<div><div></div><div>Windows, MacOS, Linux.</div></div>

Projects

Sep 2023 – Present	<div><div></div><div>Linguistic Quality Analyzer for REST and GraphQL APIs, Python-based CLI Tool that uses NLP concepts: REST and GraphQL have become popular choices for developing high-quality APIs for software applications. The design quality of these APIs significantly influences their acceptance and adaptability. This project applies syntactic and semantic analysis to REST and GraphQL APIs to automatically detect poor linguistic design. This automated detection aids API developers in recognizing and enhancing overall design quality.</div></div>
Jan 2024 – Apr 2024	<div><div></div><div>Depthwise Separable Convolutions with Deep Residual Convolutions: Optimized Xception architecture for edge devices, combining depthwise separable convolutions and deep residual convolutions to create a lightweight and efficient model, reducing parameters, memory usage, and computational load. Evaluation on the CIFAR 10 dataset demonstrates its superiority over standard Xception in terms of smaller parameter size, reduced training time, and improved performance for object detection tasks.</div></div>

Projects (continued)

- **Implementation and Evaluation of Spatiotemporal Prediction Approaches:** Chronnet is a network model for spatiotemporal data analysis, which divides geometric space into grid cells connected chronologically to capture recurrent events and various data properties. We implement Chronnet in Python (originally implemented in R) and evaluate and compare Chronnet with spatiotemporal model HetSPGraph, and spatiotemporal benchmark OpenSTL. Experimental result shows that Chronnet is much more effective for pruning the number of nodes in networks while OpenSTL convLSTM architecture demonstrates superior performance on weather benchmark data.

Selected Publications

Conference Proceedings/Workshop

- 1 **Dey, Krishno**, Cao, H., & Palma, F. (2024). Assessing and Comparing the Linguistic Design Quality of APIs of Distributed Systems and Microservices. In *34th international conference on collaborative advances in software and computing (cascon)* (pp. 55–58). IEEE.
- 2 **Dey, Krishno**, Tarannum, P., Hasan, M. A., Razzak, I., & Naseem, U. (2024). Better to Ask in English: Evaluation of Large Language Models on English, Low-resource and Cross-Lingual Settings (Submitted to COLING 2025).
- 3 Hasan, M. A., Tarannum, P., **Dey, Krishno**, Razzak, I., & Naseem, U. (2024). Do Large Language Models Speak All Languages Equally? A Comparative Study in Low-Resource Settings (Submitted to COLING 2025).
- 4 **Dey, Krishno**, Tarannum, P., Hasan, M. A., & Noori, S. R. H. (2023). NN at CheckThat! 2023: Subjectivity in News Articles Classification with Transformer Based Models. In *Clef 2023: Conference and labs of the evaluation forum, september 18–21, 2023, thessaloniki, greece*.
- 5 **Dey, Krishno**, Tarannum, P., Hasan, M. A., & Palma, F. (2023). Semantics Squad at BLP-2023 Task 1: Violence Inciting Bangla Text Detection with Fine-Tuned Transformer-Based Models. In *Proceedings of the first workshop on bangla language processing (blp-2023)* (pp. 225–229).
- 6 Tarannum, P., Hasan, M. A., **Dey, Krishno**, & Noori, S. R. H. (2023). Z-Index at BLP-2023 Task 2: A Comparative Study on Sentiment Analysis. In *Proceedings of the first workshop on bangla language processing (blp-2023)* (pp. 324–330).

Reviewer

2023	■ BLP2023 Bangla Language Processing Workshop, December 2023, EMNLP, Singapore.
2022-2023	■ CLEF 2022 and 2023: Conference and Labs of the Evaluation Forum Conference and Labs of the Evaluation Forum.
2022-Preset	■ International Journal of Advances in Soft Computing and its Applications, ISSN: 2074-8523.



Awards and Scholarships

- 2023 ■ **Award**, Board of Governors Merit Awards for Graduate Studies, Faculty of Computer Science, University of New Brunswick.
- Sep 2023-Aug 2025 ■ **Award**, Masters International Differential Tuition Scholarship/Waiver, Faculty of Computer Science, University of New Brunswick.
- Sep 2023-Aug 2025 ■ **Award**, Graduate Academic Award (GAA) / Graduate Research Award (GRA), Faculty of Computer Science, University of New Brunswick.
- 2021 ■ **Award**, Research Award Research Publications, Research Division, Daffodil International University (DIU).
- 2021-2021 ■ **Fellowship**, Teaching Apprentice Fellowship, Faculty of Science and Information Technology, Daffodil International University (DIU).
- 2017-2020 ■ **Scholarship**, Tuition fee waiver based on the academic result in 10 semesters out of 12 semesters from the Faculty of Science and Information Technology, Daffodil International University (DIU).







Training / Workshop / Seminar Experience

- Apr 2023 ■ Introducing Complex Engineering Problem in Final Year Design Project, Organized by Institutional Quality Assurance Cell (IQAC), Daffodil International University.
Speaker: Professor Dr. Ahmed Wasif Reza, A BAETE Expert, East West University, Dhaka.
- Jul 2022 ■ Day-long Onsite OBE Training, Organized by Department of Computer Science and Engineering, Daffodil International University.
Facilitator: Professor Dr. Ahmed Wasif Reza, East West University, Dhaka.
- Seminar on OBE Activities and Practices at University Level, Organized by Department of Computer Science and Engineering, Daffodil International University.
Speaker: Professor Dr. Hasan Sarwar, Member, (BAETE), IEB, United International University, Dhaka.
- Jan 2022-Dec 2022 ■ Teacher Training Program, a monthly training program of diverse teaching, research, and learning domains by the Human Research Development Institute, Daffodil International University.
- Jan 2022 ■ Teacher Training Program, Attended 'Participatory Engaging Teaching (PET)' Training for 8 days arranged by Human Research Development Institute, Daffodil International University.

Training / Workshop / Seminar Experience (continued)

- Feb 2021-Dec 2021  Teaching Apprentice Fellowship a monthly training program of diverse teaching, research, and learning domains by the Human Research Development Institute, Daffodil International University.
- Dec 2020-Jan 2020  32-day Mentorship and Leadership Development Training Program Under Teaching Apprentice Fellowship Selection Process by Human Research Development Institute, Daffodil International University.

University/Department Service

- Feb 2023  **Organizer**, – National Girls Programming Contest 2022, Bangladesh.
- Jul 2022-Dec 2023  **Organizer**, – Take-Off Programming Contest, Dept. of CSE, Daffodil International University (DIU).
- Jan 2023 - Dec 2023  **Advisor**,– Daffodil International University (DIU) ACM.
- Jan 2022- Jan 2023  **Member**, - Dropout Prevention and Recovery Committee, January 2022-January 2023 Daffodil International University (DIU).
- Jul 2022- Sept 2023  **Co-Coordinator**, of all sections of CSE122 – Programming and Problem-Solving and CSE123 – Programming and Problem-Solving Lab course.
- Aug 2022  **Recruiter**, Lab Associate Recruitment Team, Semester Fall 2022.

References

Available on Request