Joy Krishan Das

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CAREER OBJECTIVES

My career objectives are as follows: (a) To contribute to the fields of SE4AI and AI4SE by conducting cutting-edge research and tackling emerging challenges, (b) To develop innovative and cost-effective solutions that assist developers in managing software bugs, features, and source code, (c) To enhance my research and development skills through continuous learning.

EDUCATION

Master of Science, Computer Science/Software Engineering
University of Saskatchewan, Canada
September 2023 – Present

Grade	**91%**
Advisor	Prof. Dr. Chanchal K. Roy
Thesis	Studying Developers' Engagement with ChatGPT for Issue Resolution
Awards	TCSE Distinguished Paper Award; SOAR Distinguished Research Award; 1st Place, Research Fest 2025; Faculty Scholarship & GT Fellowship

Bachelor of Science, Computer Science and Engineering
BRAC University, Bangladesh
May 2016 – April 2020

CGPA	**3.92/4.00**, *Highest Distinction*
Advisor	Prof. Dr. Amitabha Chakraborty
Thesis	Urban Sound Classification using Convolutional Neural Network and Long Short Term Memory based on Multiple Features
Awards	Vice Chancellor's List (eight semesters), Dean's List (two semesters), Merit-Based Scholarship

PUBLICATIONS

[2025]

[5] **Joy Krishan Das**, S. Mondal, and C. Roy, *"Why Do Developers Engage with ChatGPT in Issue-Tracker? Investigating Usage and Reliance on ChatGPT-Generated Code"*, In Proceeding of The 32nd IEEE International Conference on Software Analysis, Evolution, and Reengineering (**SANER**), Montreal, Canada, March 2025. (Acceptance Rate: **23.11%**) (**TCSE Distinguished Paper Award***) (**Featured at Ministry of AI Blog***)

[4] S. Cynthia, S. Mondal, **Joy Krishan Das**, and B. Roy, *"Gender Disparities in Contributions, Leadership, and Collaboration: An Exploratory Study on Software Systems Research"*, In the Proceeding of The Sixth Workshop on Gender Equality, Diversity, and Inclusion in Software Engineering (**GE@ICSE**), Ottawa, Canada, 2025. (To appear)

[2024]

[3] **Joy Krishan Das**, Saikat Mondal, and Chanchal K. Roy, *"Investigating the Utility of ChatGPT in the Issue Tracking System: An Exploratory Study"*, In the Proceeding of The 21st IEEE/ACM International Conference on Mining Software Repositories (**MSR**), Lisbon, Portugal, 2024. (Acceptance Rate: **45%**)

[2021]

[2] **Joy Krishan Das**, Md. Jalil Piran, and Amitabha Chakrabarty. "*Environmental sound classification using convolution neural networks with different integrated loss functions*", **Expert Systems** 39, no. 5, e1280, 2021 (Impact Factor: **3.3**)

[2020]

[1] **Joy Krishan Das**, A. Ghosh, A. Pal, S. Dutta, and A. Chakrabarty. "*Urban Sound Classification Using Convolutional Neural Network and Long Short Term Memory Based on Multiple Features*", In the Proceeding of The Fourth IEEE International Conference On Intelligent Computing in Data Sciences (ICDS), Fez, Morocco, 2020

AWARDS

[7] **[2025] 1st Place – Research Presentation**: Awarded by the Computer Science Graduate Council, University of Saskatchewan, during Research Fest 2025. Award value: $500

[6] **[2025] TCSE Distinguished Paper Award**: Awarded by the Technical Council of Software Engineering for the **SANER** 2025 paper —"*Why Do Developers Engage with ChatGPT in Issue-Tracker? Investigating Usage and Reliance on ChatGPT-Generated Code*"

[5] **[2025] Graduate Travel Award:** Awarded by the University of Saskatchewan for SANER 2025 travel to Montreal, Canada. Award value: $500

[4] **[2024] Dr. Keith Geddes Award (Nomination)**: Nominated by Prof. Dr. Chanchal K. Roy, this award is given to *only one* MSc student by the Department of Computer Science at the University of Saskatchewan for exemplary research and academic performance in the MSc program

[3] **[2024] SOAR Distinguished Research Award:** Awarded by SOAR program for the **MSR** 2024 paper —"*Investigating the Utility of ChatGPT in the Issue Tracking System: An Exploratory Study.*" Award value: $300

[2] **[2023] SOAR People's Choice Presentation Award:** Awarded by SOAR program for outstanding presentation on topic —"*Large Language Models as Codebase Healers: Exploring Automated Program Repair and Test-Suite Generation.*" Award value: $300

[1] **[2022] Highest Distinction Award:** Awarded by BRAC University at the 19th Convocation, this award is given to candidates with a CGPA of 3.80 or higher

$ SCHOLARSHIPS

[2] **[2023-2025] Faculty Scholarship & Graduate Teaching Fellowship:** Awarded by the Department of Computer Science, University of Saskatchewan for the Masters program. Scholarship amount: $25,000/year for 2 years

[1] **[2016-2020] Merit-Based Scholarship:** Awarded by the Department of Computer Science, BRAC University for the Bachelors program. Scholarship amount: $2,100

RESEARCH

Overview: Software issues and failures lead to substantial financial losses annually, with U.S. businesses incurring approximately $2.41 trillion in costs in 2022 alone. Traditional software development methodologies, characterized by sequential phases and rigid structures, often struggle to adapt to changing requirements, resulting in inefficiencies and increased maintenance efforts. My research is dedicated to creating innovative, cost-effective, and robust solutions that as-

sist developers in effectively managing software issues and implementing necessary code-level change.

Research Projects

[**Empirical Studies on Developer–AI Collaboration**]

[3] Developer Engagement and Code Reliance on ChatGPT in Issue Tracker

Overview We conducted an empirical study to explore how developers interact with ChatGPT in issue-tracking systems. Our multi-method approach—consisting of manual analysis, topic modeling, clone detection, and sentiment estimation—reveals that ChatGPT is primarily used for generating ideas. However, the code it produces is rarely integrated into projects due to concerns about reliability. These findings emphasize the need for AI solutions tailored to specific tasks in order to improve issue resolution efficiency and enhance developer satisfaction.

Duration 2023 – 2024

Outcome **SANER** x 1 (**TCSE Distinguished Paper Award**), and **MSR** x 1 (challenge paper)

[**Automated Issue Resolution with Agents**]

[2] Correlating Bug Report Quality with Agent Performance

Overview This ongoing study investigates how the intrinsic quality of bug reports—such as clarity, reproducibility cues, and specificity—affects the performance of an agentic-based program repair system. By empirically analyzing various bug report attributes and their correlation with the agent's ability to accurately localize faults and generate effective patches, the project aims to identify key factors that enhance automated repair outcomes. Leveraging both automated extraction and manual assessment techniques, our research seeks to inform the design of more effective bug reporting tools and adaptive repair agents to ultimately improve software maintenance efficiency.

Duration 2024 – Ongoing

[**Gender Diversity in Software Engineering Research**]

[1] Gender Disparities in Contributions and Collaboration in Software Research

Overview We conducted an analysis of articles published in the Journal of Systems and Software (JSS) over the past decade, specifically focusing on those co-authored by both men and women. Our goal was to examine gender disparities in software research. Our findings show that women represent only 32.74% of authors and lead fewer studies compared to their male counterparts. While their contributions are comparable to those of men, particularly in areas such as conceptualization, writing, and reviewing, female authors tend to be more involved in human-centric research. Additionally, they often collaborate more frequently with local partners than with national ones. These insights underscore the importance of promoting greater inclusivity and equity within the research community.

Duration 2023 – 2024

Outcome **GE@ICSE** x 1

Sub-Reviewer (2023—Present)

- International Conference on Software Engineering (**ICSE**)
- International Conference on Automated Software Engineering (**ASE**)
- International Conference on Software Maintenance and Evolution (**ICSME**)
- International Conference on Software Analysis, Evolution, and Reengineering (**SANER**)

INDUSTRY EXPERIENCE

Employment History

Graduate Teaching Assistant, University of Saskatchewan

Duration September 2023—Present

Responsibilities Appointed as a graduate teaching assistant in the Department of Computer Science from 2012 to 2019. I was responsible for graduate research & development, leading tutorials of CMPT 370: Intermediate Software Engineering, and for marking three other undergraduate courses.

Software Engineer, Therap (BD) Ltd.

Duration September 2021—July 2023

Responsibilities Implemented automated quality assurance processes with Java, Selenium WebDriver, and REST Assured, while conducting various types of testing and sharing domain knowledge.

Lecturer (On Contract), BRAC University

Duration October 2020—February 2021

Responsibilities Created lesson plans for Artificial Intelligence and Introduction to Computer Science, and offering support during office hours.

Undergraduate Teaching Assistant, BRAC University

Duration January 2019—April 2020

Responsibilities Assisted with Java in the Programming Language I and II courses. Helped students with MATLAB in the Numerical Methods course

Programming, Software, and Technologies

- **Programming Languages:** Python, Java, JavaScript, Dart
- **Web Frameworks:** HTML, CSS, React, Node.js, Express.js, Django, Flask
- **Data Science Tools:** NumPy, Pandas, Scikit-Learn, Jupyter, Keras, PyTorch
- **Database Programming:** MySQL, PostgreSQL, MongoDB, JDBC
- **DevOps:** Git, GitHub, GitLab, Docker
- **Agentic Frameworks:** Langchain, LangGraph, Autogen, AutoGPT

Recent Projects

– **SafeSnippet:** Engineered a research project, leveraging 20 LLMs with a RAG-based detection pipeline to identify and repair code vulnerabilities.

– **CRISP:** A framework that uses LLM-driven dialogue grounded in repository context (in form of GraphRAG) to automatically clarify, retrieve, and resolve software issues.

– **Other agentic projects:** *AgenticPR*: Automated bug repair tool, *AgenticWriter*: AI-powered content generation, *AgenticCalendar*: Intelligent scheduling assistant.

TEACHING EXPERIENCE

[**University of Saskatchewan**]

[8] Winter 2025/CMPT 370 - Software Engineering (Tutorial Leader): Enrollment 26

[7] Fall 2024/CMPT 281 - Website Design and Development (Tutorial Leader): Enrollment 30

[6] Winter 2024/CMPT 340 - Programming Language Paradigms (Marker): Enrollment 205

[5] Fall 2023/CMPT 141 - Introduction to Computer Science (Marker): Enrollment $\approx$ 100

[**BRAC University**]

[4] Fall 2020/CSE422 - Artificial Intelligence (Lab Instructor): Enrollment ≈ 50

[3] Fall 2020/CSE101 - Introduction to Computer Science (Lab Instructor): Enrollment ≈ 100

[2] Summer 2019/CSE330 - Numerical Methods (Tutorial Leader): Enrollment ≈ 320

[1] Fall 2019/CSE110 - Programming Language I (Tutorial Leader): Enrollment ≈ 40

VOLUNTARY SERVICES

[3] (2024) Vice President Internal: Computer Science Graduate Council, USask

[2] (2021) MOOC Mentor: DeepLearning.AI

[1] (2021) Section Leader: Code In Place, Stanford University

CERTIFICATIONS

[2] (2020) Google IT Automation with Python Professional Certificate
[1] (2020) Natural Language Processing - DeepLearning.AI Specialization

PROFESSIONAL REFERENCES

(1) Dr. Chanchal K. Roy

Professor, University of Saskatchewan, Canada
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(2) Dr. Banani Roy

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