Sumit Kumar Kar
Research Assistant

📞 +8801571040586
✉ sumitkumarkar01@gmail.com
 SumitKumarKar01
 Sumit Kumar Kar
🎓 Google Scholar
🌐 sumit.com.bd

EXPERIENCE

•Research Intern *May 2025 – Present*

AlByr Hybrid

– Leading research team in planning fieldwork, including field visit strategies and participant recruitment.
– Conducted semi-structured interviews to uncover participant needs, practices, and systemic issues.
– Co-led focus group discussions with stakeholders to gather diverse perspectives and validate insights.
– Collaborating with a multidisciplinary team to shape product ideas during the discovery phase.
– Transcribed and extracted key insights from qualitative interviews to inform design and strategy.
– Facilitating regular meetings with team members and the founder.
– Reporting progress and aligning findings with strategic direction through leadership communication.

•Research Assistant *February 2025 - Present*

North South University Hybrid

– Conducting literature review to identify research gaps in AI-driven mental health support.
– Designed semi-structured interview questions for user-centered studies.
– Transcribed participant interviews conducted in both Bangla and English.
– Conducted preliminary thematic analysis to identify patterns.
– Develop an empathetic mental health chatbot powered by Large Language Models (LLMs).
– Collect and curate extensive datasets to fine-tune the chatbot for improved contextual understanding.
– Utilize fine-tuning and prompt engineering techniques to enhance chatbot responsiveness and empathy.
– Implement model optimization techniques to reduce computational requirements.
– Work under the supervision of faculty from both Computer Science and Psychology backgrounds, integrating interdisciplinary insights into model development.

•Research Assistant *March 2024 - Present*

DIAL: Design Inclusion and Access Lab Hybrid

– Lead and co-lead multiple research projects, overseeing task delegation, team coordination, and milestone tracking.
– Conduct comprehensive literature reviews to identify research gaps and determine suitable methodologies.
– Preprocessed and annotated image data to build research datasets.
– Leverage NLP analysis, along with qualitative data analysis and image processing, to derive valuable insights.
– Performed NLP-based sentiment and emotion analysis on interview transcripts and user-generated data.
– Develop data visualizations to effectively communicate findings using Python libraries.
– Contribute to writing research papers and preparing presentations for conferences and journal publications.
– Collaborate with multidisciplinary teams, including social science and computer science researchers, to integrate diverse perspectives into the research process.

ACCEPTED PAPERS

• Rokkha: Enabling Offline Emergency Location Sharing via SMS 🔗
ICCA: International Conference on Computing Advancements *June 2025*

• A Novel Approach for Recognizing Real-Time American Sign Language (ASL) Using the Hand Landmark Distance and Machine Learning Algorithms 🔗
IEEE International WIE Conference on Electrical and Computer Engineering *November 2023*

PERSONAL PROJECTS

• NARI: Women's Healthcare Smartphone Application for Bangladeshi Women 🔗

– Developed the app using Kotlin, ensuring concise syntax and enhanced safety for clean and efficient code.
– Integrated Firebase Authentication for secure user login and registration processes.
– Employed Firebase Firestore for flexible data management and real-time database functionalities.
– Technology Used: Kotlin, Jetpack Compose, Material Design 3, Firebase, SQLite.

EDUCATION

• Bachelor of Science in Computer Science and Engineering *2020 - 2024*

North South University, Dhaka CGPA: 3.17

CERTIFICATIONS

•Introduction to Informed Consent
The Global Health Network February 2025

•AWS Educate Machine Learning Foundations
Amazon Web Services June 2025

•Introducing Generative AI with AWS
Udacity June 2025

TECHNICAL SKILLS AND DOMAIN INTERESTS

Programming Languages: C/C++, Python, Java, Kotlin, JavaScript, HTML, CSS
Libraries & Frameworks: NumPy, Pandas, HuggingFace, Matplotlib, Seaborn
Tools & Software: Git, GitHub, LaTeX, Microsoft Office (Word, Excel, PowerPoint)
Database: Firebase, MySQL, SQLite
Relevant Courses: Machine Learning, Pattern Recognition, Neural Networks
Domain Interests: Artificial Intelligence, Natural Language Processing, Large Language Models

RESEARCH FOCUS AREAS

Human-Computer Interaction (HCI)	: Exploring user-centered design and technology adoption for diverse populations.
Natural Language Processing (NLP)	: Applying natural language processing techniques for various AI applications.
Large Language Models (LLMs)	: Fine-tuning and prompt engineering of LLMs for domain-specific solutions.
AI, ML & Deep Learning	: Developing models for detection and prediction tasks across multiple domains.
Computer Vision & Image Processing	: Developing methods to extract insights from visual and image-based data.
Mixed-Methods Data Analysis	: Extracting actionable insights from qualitative and quantitative data
Qualitative Research	: Conducting FGDs and interviews to understand user needs and inform design.
Interdisciplinary Research	: Collaborating across domains to address complex, real-world problems.
AI and Policy Research	: Exploring the intersection of artificial intelligence and policy-making
Inclusive Technology Design	: Collaborating with various underrepresented groups, including tertiary students, women in computing, people with disabilities, and micro-entrepreneurs to develop accessible, context-aware solutions that support wellbeing and inclusion.

SOFT SKILLS

Soft Skills: Leadership, Teamwork, Problem-solving, Fast Learner, Communication, Adaptability, Time Management, Critical Thinking, Project Management, Research Skills, Presentation Skills, Collaboration

LANGUAGE PROFICIENCY

Bengali: Native language, fluent in speaking and writing.
English: Fluent in speaking, reading, and writing. Proficient in technical and academic writing.