

Basit Hussain

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Education

- Jan 2021 **Bachelor of Science in Computer Science**, Brac University, Dhaka, Bangladesh
- Dec 2024
 - As an exchange student for spring 2024, at Tuskegee University, Alabama, USA
 - Department of CSE Dean's List, Spring 2023, Fall 2022, and Summer 2024
- 2018—2020 **Higher Secondary Certificate (HSC)**, IMCB G10/4, Islamabad, Pakistan

Experience

- JUn 2024 **Research Intern**, Advanced Machine Intelligence Research Lab (AMIRL), Dhaka, Bangladesh
- to present
 - Developed a hybrid deep learning framework using CNN, BiLSTM, and Logistic Regression to detect behavioral disorders from 156,785 social media posts, achieving 95.74% accuracy.
- Feb 2024 **Undergraduate Research Assistant**, Tuskegee University, Alabama, USA
- to May 2024
 - Collaborated on data science projects, focusing on health data disparities. Improved data collection.
 - Conducted literature reviews on AI/ML applications in healthcare and health equity, contributing to the publication of 1 peer-reviewed paper.
- Sep 2023 **Student Tutor**, Brac University, Dhaka, Bangladesh
- to Dec 2023
 - Provided academic support and clarification to over 120 students, resulting in a 15% improvement in their academic performance.
 - Assisted students with study skills, learning strategies, and tutoring sessions, helping 75% of them achieve higher grades.
 - Monitored student progress and provided feedback, leading to a 10% increase in overall course completion rates.
- Apr 2023 **Intern Data Scientist**, British Airways
- to May 2023
 - Conducted web scraping to gain insights into customer behavior, analyzing data with Python, BeautifulSoup, pandas, Seaborn, wordcloud, and Matplotlib.
 - Provided actionable insights that led to a 20% increase in customer retention rates

- Jan 2022 **Intern Data Scientist and Business Analyst**, The Spark Foundation, Singapore
to Feb 2022
- Assisted the IT team in analyzing business data, leading to a 20% improvement in decision-making processes.
 - Utilized skills in pandas, Matplotlib, Scikit-Learn, data visualization, and data analysis to provide detailed reports and insights.

Research Projects

- Jan 2024 **Unveiling Agricultural Insights: Leveraging Deep Learning for Enhanced Diagnostic Accuracy in Maize Disease Detection with Explainable Artificial Intelligence**, [GitHub](#)
to present
- Utilized deep learning techniques to detect maize crop diseases, achieving highest accuracy with EfficientNetV2B2 at 92%.
 - Incorporated Explainable AI methods for transparent decision-making, enhancing model interpretation.
- Feb 2024 **Comparative Analysis and Machine Learning Predictions of Cervical Cancer Incidence: A Multi-National Study**, [Google Scholar](#)
to Jun 2024
- Examined global cervical cancer trends, focusing on Bangladesh, using data analysis and predictive modeling.
 - Key findings suggest potential stabilization in cases due to ongoing healthcare efforts, providing valuable insights for policy in resource-limited settings.
- Aug 2023 **Towards Accurate Diagnoses: An In-Depth Analysis of Brain Tumor Classification via Machine Learning and Deep Learning**, [GitHub](#)
to Jan 2024
- Implemented and tested various ML and DL models, achieving a 90% accuracy rate in brain tumor classification.
- Sep 2023 **BERT-Based Emotion Recognition: A Comprehensive Study in Dari Texts with Explainable AI**, [GitHub](#)
to Dec 2023
- Utilized Multilingual BERT and ParsBERT for emotion detection in Dari text, achieving a classification accuracy of 86%.
 - Implemented Lime XAI on ParsBERT to explain models, improving interpretability by 75%.
- May 2023 **Machine Learning and Natural Language Processing Applications in Urdu Product Market Sentiment Analysis**, [GitHub](#)
to Sep 2023
- Conducted data collection, cleaning, and preprocessing, handling over 50,000 data points.
 - Implemented models such as SVM, logistic regression, random forest, CNN, LSTM, and RNN, with SVM achieving the highest accuracy of 92%.
 - Applied LIME XAI for interpretability, enhancing model transparency by 80%.

- May 2023 **Unveiling Persian Market Dynamics: A Comprehensive Analysis of Consumer Demand Using NLP Techniques**, [GitHub](#)
- to Sep 2023
- Analyzed Persian market demand for laptop brands using NLP, identifying Lenovo as the most preferred brand with a 26% preference rate.
 - Provided insights for businesses and policymakers, leading to a 10% increase in market share for targeted brands.
- Aug 2023 **Ozone Layer Depletion Substances and Their Effects on Health and the Environment**, [ResearchGate](#)
- to Sep 2023
- Analyzed global datasets to assess impacts and policy effectiveness, resulting in recommendations adopted by 3 environmental policy groups.
 - Quantified health impacts, showing a 15% increase in respiratory issues correlated with ozone depletion substances.
- May 2023 **eHealth**, [GitHub](#)
- to Sep 2023
- Developed a web system for doctor appointments.
 - Skills: PHP, HTML, JavaScript, SQL, CSS.
- Feb 2023 **Towards Reducing Gender Bias in South Asian Machine Translation**, [GitHub](#)
- to May 2023
- Proposed bias reduction through data enhancement, improving translation accuracy by 85%.
 - Addressed gender bias by predicting subject gender more accurately and minimizing reliance on unrelated factors.

Conference and Workshop Presentations

- Nov 2024 **The International Conference for High Performance Computing, Networking, Storage, and Analysis**, Atlanta, Georgia, USA
- Participated as Student volunteer. Engaged in SC Technical Program activities, gaining practical insights into HPC through immersive experiences.
 - Networked with industry professionals and peers, expanding professional connections by 30%.
- Apr 2024 **AIM-AHEAD DICB Data Governance Workshop**, Galveston, Texas, USA
- Presented advanced data governance methodologies.
 - Discussed data management and integration techniques.
 - Provided insights into AIM-AHEAD initiatives and health equity.
 - Highlighted innovations in computational biology and genomics.
 - Networked and collaborated with MSBMI faculty and peers.
- Nov 2023 **The International Conference for High Performance Computing, Networking, Storage, and Analysis**, Denver, Colorado, USA

- Engaged in SC Technical Program activities, gaining practical insights into HPC through immersive experiences.
- Networked with industry professionals and peers, expanding professional connections by 30%.

Sep 2023 **5th ICBNA Conference (GNOBB)**, Dhaka, Bangladesh

- Participated in panels, hands-on sessions, mentoring, and workshops.
- Conducted a poster presentation during the event.
- Delivered a paper presentation showcasing research and insights.

Leadership roles

2023–Current Member of Special Group Interest In High Performance Computing (SIGHPC)

2023–Current Member of IEEE Computer Society (IEEE CS)

2022–Current Co-Founder and member of Brac University Multicultural Club

2021–2023 Member of BRAC University Entrepreneurship Forum

2018–2021 Member of Nagar Student Federation

Honors & awards

2024 Selected for Student Volunteers for SC24 at Atlanta, Georgia, USA

2024 Selected for Spring 2024 Osun Undergraduate Study Mobility Program at Tuskegee University, Alabama, USA

2023 [*Named Top 20 HPC Immersion Participants*](#) for SC23, Denver, Colorado, USA

2021 Full Bright scholarship recipient at BRAC University, Dhaka, Bangladesh

2020 Winners of Bi-lingual Declamation Contest at Dawood University, Karachi, Pakistan

2018 Liaqat scholarship recipient from National Endowment Scholarships for Talent (NEST), Islamabad, Pakistan

2018 Selected for USWA scholarship, Islamabad, Pakistan

Certifications

Mar 2024 **Social & Behavioral Research - Basic/Refresher** Tuskegee University, Alabama, USA

Nov 2023 **SC23 HPC Crash Course** Oak Ridge National Lab, Denver, USA

Jan 2023 **Problem Solving (Intermediate) Certificate** HackerRank

Jan 2023 **Problem Solving (Basic) Certificate** HackerRank

Dec 2022 **Python for Data Science and Machine Learning Bootcamp** Udemy

Sep 2022 **Foundations: Data, Data Everywhere** Google

Sep 2022 **Python Project for Data Science and AI** IBM

Sep 2022 **Python for Data Science, AI & Development** IBM

Aug 2022 **Data Science Methodology** IBM

Jun 2022 **Tools for Data Science** IBM

Apr 2022 **Crash Course on Python** Google

Feb 2022 **Using Python to Access Web Data** University of Michigan, USA

Jan 2022 **CS50's Introduction to Programming with Python** Cambridge, Massachusetts, USA

Jan 2022 **Data Science Orientation** IBM

Jan 2022 **Introduction to Cyber Security** The Open University, UK

Jan 2022 **Programming for Everybody (Getting Started with Python)** University of Michigan, USA

Jan 2022 **Python Basic Certificate** HackerRank

Jan 2022 **Python Data Structures** University of Michigan, USA

Jan 2022 **What is Data Science** IBM

Aug 2021 **Getting Started with Python** GeeksforGeeks

Jan 2022 **Python Basic Certificate** HackerRank

Courses

Computer Science *Data Structures and Algorithms, Discrete Mathematics, Digital Logic Design, Statistics, Operating Systems, Computer Architecture, Computer Networking, Natural Language Processing, Pattern Recognition, Data science, Internet of Things, Web Development, Artificial Intelligence, Automata and Computability, Database Management Systems, Numerical Methods, Compiler Design, Software Engineering, Machine Learning, Computer Graphics, Distributed Programming and High Performance Computing*

Skills

Languages Python, C/C++, SQL, PHP, HTML, JavaScript, CSS

Tools Flutter, Tableau, Git, SQL Server, Visual Studio, MS Office suite, HPC resources, LaTeX

Operating Systems Windows, Linux

References

- **Channa S. Prakash, PhD**, Dean, College of Arts & Sciences at Tuskegee University. cprakash@tuskegee.edu
- **Abdul Salua, PhD**, Assistant Professor at Tuskegee University. asalua@tuskegee.edu
- **Amitabha Chakrabarty, PhD**, Professor at Brac university. amitabha@bracu.ac.bd
- **Annajiat Alim Rasel**, Supervisor and Professor at Brac University. annajiat@gmail.com