BARSHA ROY

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SUMMARY

I aim to contribute to research in machine learning and deep learning, particularly in the fields of computer vision, scalable AI, HPC, and computer architecture. Through my passion for innovation and strong technical skills, I seek to advance research and development efforts. I am eager to pursue a PhD, focusing on research in data-driven decision-making, seeking a Graduate Research Assistantship to contribute to innovative advancements in the field

EDUCATION

B.Sc. in Computer Science & Engineering   Awarded: September 2023
Rajshahi University of Engineering & Technology (RUET)   **CGPA-3.44/4.00**

RESEARCH INTEREST

- **Computer Vision**
- **HPC**
- **Computer Architecture**

- **Cyber-Physical Systems**
- **Cybersecurity**
- **Scalable AI**

RESEARCH EXPERIENCE

1. Md. Sakib Bin Alam, **Barsha Roy** et al. *"A TinyML-optimized multi-dataset fusion framework for speech emotion recognition using hybrid neural networks."* In review, IEEE Transactions on Computational Social Systems.
2. **Barsha Roy**, Md Farukuzzaman Faruk et al. *"A Cutting-Edge Ensemble of Vision Transformer and ResNet101v2 Based Transfer Learning for the Precise Classification of Leukemia Sub-types from Peripheral Blood Smear Images".* 6th International Conference on Electrical Engineering and Information and Communication Technology (ICEEICT). IEEE. 2024. DOI: 10.1109/ICEEICT62016.2024.10534388
3. Tahsen Islam Sajon, **Barsha Roy** et al. *"Attention Mechanism-enhanced Deep CNN Architecture for Precise Multi-Class Leukemia Classification".* 2nd International Conference on Big Data, IoT and Machine Learning (BIM, 2023). Lecture Notes in Networks and Systems, vol 867. Springer, Singapore.
DOI: 10.1007/978-981-99-8937-9_24
4. Md Nazmul Islam, **Barsha Roy** et al. *"Spatial Attention-guided Deep Learning for Accurate Kidney Disease Classification in CT Scans".* 26th International Conference on Computer and Information Technology (ICCIT). IEEE. 2023. DOI: 10.1109/ICCIT60459.2023.10441347

WORK EXPERIENCE

University of Information Technology and Sciences (UITS)   Jan 2024 - Present
Lecturer - Department of CSE   *Dhaka, Bangladesh*
- Courses Taken: Computer Architecture, Digital Logic Design, Internet Programming, Assembly Language Programming, Scientific Research Methodology, Client Server Programming, Distributed System and Cloud Computing, Information System Design, Network Security, Software Engineering
- Administrative Duty: OBE Trainee, Advisor, Course Outline Preparation, Thesis Supervisor

University of Scholars (IUS)   Nov 2023 - Jan 2024
Lecturer - Department of CSE   *Dhaka, Bangladesh*
- Courses Taken: Structured Programming Language, Computer Fundamentals, Competitive Programming
- Administrative Duty: Advisor, Course Outline Preparation

Qubitech Solutions   Mar 2022 - Sep 2022
Web Developer   *Rajshahi, Bangladesh*
- Contributed to developing a dynamic web application using React.js
- Designed and implemented key modules, including a functional menu and "Add to Cart" features
- Collaborated with team members to ensure seamless integration and optimal performance

- Assisted in debugging and troubleshooting issues to ensure application stability
- Participated in code reviews to maintain high-quality standards

Code Studio   Apr 2021 - Jun 2021
UI/UX Intern   *Rajshahi, Bangladesh*
- Assisted in designing user interfaces using Figma and Adobe XD
- Worked with team members to align designs with project goals
- Conducted design reviews and provided feedback
- Assisted in the creation of wireframes and prototypes for new features

PROJECTS

E-Bookopolis | Django, HTML, CSS, Bootstrap, JavaScript [GitHub Link]
- Created a user-friendly e-commerce website for a book store with Django, HTML, CSS, Bootstrap, and JavaScript
- The site provides an enjoyable shopping experience, showcasing highlighted books, categories, and a functional cart system
- Users can create accounts, manage information, and view order history

Blood Donation App | Java [GitHub Link]
- Developed a Blood Donation App integrating Firebase, Google Maps API and Firebase Messaging Services
- The app allows users to register, log in and request blood donations. The users can toggle their blood request status and receive notifications from nearby registered donors
- Implemented a donor acceptance feature and integrated user profiles with contact information and location services

3-bit CPU Design | Multisim [GitHub Link]
- Developed a 3-bit CPU with a 16-bit word size, requiring 16-bit SRAM, supporting arithmetic and logic instructions in Register, Immediate, and Branching modes including SHL and SHR operations
- Designed a 3-bit ALU, register set, counter register, and PC adder
- Implemented a 16-bit ISA with a 3-bit opcode and 13-bit operand

TECHNICAL SKILLS

- **Programming Languages:** Python, C, C++, Java, JavaScript, SQL, MATLAB, Verilog
- **Libraries/Frameworks/APIs:** Django, React.js, Pandas, Numpy, Matplotlib, Scikit-learn, PyTorch, Transformers, TensorFlow, Keras
- **Tools for Web Development:** HTML5, CSS3, Bootstrap, REST APIs, JSON, XML
- **Database Systems:** MySQL, Firebase
- **Version Control:** Git, GitHub
- **Microsoft Office Packages:** MS Word, MS PowerPoint, MS Excel, MS Outlook

AWARDS AND ACHIEVEMENTS

- First Runner Up of National Debate Competition - 2015
- Campus Finalist of Hult Prize - 2018

CLUBS AND ASSOCIATIONS

- Executive member and former debater of RUET Debating Club
- Executive member of RUET Career Forum
- Executive member and former performer of RUET Cultural Club 'Onuronon'