KASHPIA NUSRAT AZIZAH

Computer Science Innovator | AI Research & Social Impact | Published Author in Q1 Journals

PROFILE

Aspiring Computer Science innovator with a proven record of pioneering research in AI/ML, published in premier IEEE journals, and scaling impactful ventures. Combines deep technical expertise in deep learning and full-stack development with leadership in national STEM advocacy and environmental sustainability. Seeks to leverage multidisciplinary research experience and entrepreneurial drive to solve complex computational challenges at a top-tier institution

TECHNICAL EXPERTISE

1. **AI/ML Research:** Deep Learning, Transformer Models, Federated Learning, NLP, Computer Vision, Time-Series Analysis
2. **Full-Stack Development:** Python, JavaScript, React.js, Node.js, Express.js, MongoDB, REST APIs, Docker
3. **Data Systems:** PostgreSQL, MySQL, Firebase, Prisma ORM, Data Pipeline Architecture
4. **Specialized Domains:** Biomedical Informatics, EdTech Systems, Robotics (Arduino/RPi), Environmental Monitoring
5. **Leadership & Strategy:** Venture Scaling, Cross-functional Team Leadership, Public Policy Advocacy, Technical Communication

RESEARCH & PUBLICATIONS

1. **First-Author: Deep Learning for Automated Code Optimization in Large-Scale Systems**
   IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) | Impact Factor: 24.3 | Q1
   - **Architected transformer-based model** trained on 50,000+ code samples achieving **92% accuracy** in identifying optimization opportunities, outperforming heuristic methods by 34%.
   - **Methodology enables automated refactoring** that reduces computational overhead by an average of 28% across diverse codebases.

2. **Lead Developer: AI-Driven Water Quality Monitoring with Deployed Filtration Solutions**
   Environmental Modelling & Software | Q1 Journal | In Collaboration with Local Authorities
   - **Engineered end-to-end monitoring system** analyzing 2,000+ water samples with 96% contamination detection accuracy, deployed across 3 coastal communities.
   - **Directly improved safe water access for 500+ families** through intelligent filtration deployment guided by predictive risk modeling.

3. **Independent Research: ML for Early Detection of Academic Burnout via Social Media Analytics**
   International Journal for Multidisciplinary Research (IJFMR) | Peer-Reviewed Publication
   - **Developed predictive model with 85% precision** analyzing 5,000+ social media posts, identifying at-risk students 6-8 weeks earlier than traditional methods.
   - **Proposed intervention framework** adopted by 2 educational institutions for their student wellness programs.

TECHNICAL PROJECTS

1. **DiagnoSys: Clinical Diagnostic Workflow & Records Management Platform**
   Full-Stack System Architecture | Deployed Across 3 Clinical Centers
   - **Designed and deployed centralized diagnostic platform** managing 2,500+ patient profiles and 8,000+ test records with 300-400 monthly automated reports.
   - **Streamlined data pipelines reduced redundancy by 65%** and improved clinical decision accuracy through unified access to historical patient data.

2. **Productivity Nexus: Full-Stack Habit Formation & Behavioral Analytics Dashboard**
   MERN Stack Application | Real-Time Analytics Engine
   - **Built interactive productivity platform** with user authentication, streak tracking, and predictive analytics for habit consistency.
   - **Implemented data visualization suite** generating personalized insights that improved user retention by 40% compared to baseline tools.

3. **Aurelia: Responsive E-Commerce Platform for Sustainable Consumer Goods**
   Front-End Architecture | Modern UI/UX Design
   - **Engineered performant e-commerce interface** with product catalog, cart management, and responsive design ensuring 95+ Lighthouse scores across devices.
   - **Implemented accessibility-first development** adhering to WCAG 2.1 guidelines, creating inclusive shopping experience for diverse user base.

LEADERSHIP & ENTREPRENEURSHIP

1. **Founder & President – Eco Foundation Bangladesh**
   Govt-Recognized NGO | $50K Raised | 1,000+ Volunteers | 2020–Present
   - **Built largest youth-led environmental organization** in region, executing 100+ projects restoring 50+ acres of mangroves and educating 3,000+ community members.
   - **Directly advised 2 municipal policy initiatives** on plastic reduction and coastal conservation strategies.

2. **Lead Engineer & Robotics Team Leader**
   Robi Robotech Initiative | $8K Stipend Award | National STEM Expo | 2023
   - **Led development of 12 low-cost robotic assistive devices** from recycled materials, reducing production costs by 80% compared to commercial alternatives.
   - **Deployed to 3 schools enabling 50+ students with disabilities** to perform daily tasks independently; project featured in national innovation showcase.

3. **Co-Founder & National Chapter Lead**
   Girls in Tech Bangladesh | 300+ Mentees | 2022–Present
   - **Established national STEM advocacy network** from ground up, mentoring 300+ girls through coding workshops and hackathons.
   - **Forged 5+ corporate/school partnerships** creating internship pipeline that placed 45+ students in tech roles within first year.

PROFESSIONAL EXPERIENCE

1. **Founder & Chief Operating Officer**
   NovaTech Solutions | Award-Winning AI Startup | 2023–Present
   - **Scaled venture from concept to 50+ enterprise clients** across Southeast Asia, processing 5M+ data points monthly through 5 proprietary AI SaaS tools.
   - **Raised $7K seed funding and secured national startup expo feature** while building sustainable business model with 85% client retention rate.

2. **Research Intern – Biomedical Informatics**
   Medinova Medical Research Center | 5,000+ Weekly Patient Studies | 2023–2024
   - **Analyzed 300+ biopsy and genomic profiles** for molecular marker mapping in breast cancer, contributing to 2 international research initiatives.
   - **Co-authored datasets** that improved diagnostic classification accuracy by 18% for rare cancer subtypes.

3. **Quality Assurance & Systems Analyst**
   Tech Sfera | Software Hub Serving 100,000+ Global Users | 2022
   - **Led testing for 5+ production applications**, identifying 300+ critical bugs and performance issues before launch.
   - **Optimized QA workflows reducing testing cycle time by 30%** while improving product stability for 10,000+ launch users.

4. **News Contributor & Digital Content Strategist**
   Prothom Alo – Bangladesh's Largest Newspaper | 100,000+ Readership | 2023
   - **Authored 15+ investigative pieces** on education and healthcare initiatives, conducting 30+ stakeholder interviews.
   - **Content reached 100,000+ readers** and influenced public discourse on women's entrepreneurship and STEM accessibility.

5. **National Event Coordinator & Media Producer**
   Bangladesh Television (BTV) | National Broadcaster | 2022
   - **Coordinated 5+ national cultural/educational events** with millions of viewers, managing end-to-end production logistics.
   - **Streamlined operations reducing production delays by 25%** while ensuring broadcast compliance and maximum audience engagement.

ACHIEVEMENTS & RECOGNITIONS

1. **Women Empowerment Recognition Award** – Ministry of Social Welfare, 2024 | One of 10 National Recipients
2. **FIRST Global Challenge Silver Medalist** – Robotics Innovation | #2 Among 200 International Teams, 2024
3. **National High School Programming Contest (NHSPC)** – Top 5 Nationwide | Among 5,000+ Competitors, 2021
4. **International Earth Science Olympiad** – National Representative | Top 0.04% of 12,000 Applicants, 2025
5. **BTV National Cultural Excellence Award** – Highest Distinction | 1,000+ Competitors, 2022

EDUCATION

1. **Comilla Victoria Government College – Cumilla, Bangladesh**
   Higher Secondary Certificate (Science) | GPA: 5.00/5.00 | 2021–2023
   - Completed rigorous STEM curriculum with perfect academic record; actively contributed to college science society.

2. **Ibn Taimiya School and College – Cumilla, Bangladesh**
   Secondary School Certificate (Science) | GPA: 5.00/5.00 | 2011–2021
   - Graduated with distinction; laid foundation for computational thinking through mathematics and physics excellence.

LANGUAGES

Bangla: Native Proficiency (Reading, Writing, Speaking)
English: Professional Fluency (TOEFL Equivalent: 115+)
Hindi: Conversational Proficiency