

# Farhad Hossain

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LinkedIn GitHub Google Scholar ResearchGate Website

## EDUCATION

**The Pennsylvania State University**  
*Doctor of Philosophy in Informatics*

Research Focus: Usable Security and Privacy, AI Governance, HCI and Accessible Computing

University Park, PA  
Expected May 2030

**Institute of Information Technology, Jahangirnagar University**  
*Bachelor of Science in Information Technology; CGPA: 3.53 out of 4.00*

Dhaka, Bangladesh  
Mar 2017 - May 2022

## RESEARCH INTEREST

Usable Security and Privacy, Cybersecurity, AI Governance, Large Language Models (LLMs) Security, Blockchain Security, Machine Learning Security, Human-Computer Interaction in Security

## EXPERIENCE

**Software Engineer, Cefalo AS** ↗ — **Kotlin, Java, Spring boot, Angular, React**

Dhaka, Bangladesh  
Mar 2022 - Current

- Designed and implemented REST APIs, resulting in a 17% increase in overall performance.
- Optimized server response time by 15% by restructuring API and optimizing database queries using MongoDB and PostgreSQL.
- Increased user engagement by 21% by improving usability and accessibility for non-technical users using React's PrimeReact library and Angular's Material UI and PrimeNG, aligning with key HCI principles.
- Integrated Elasticsearch to efficiently retrieve millions of records, using DSL queries for nested rules. Contributed to a custom query builder for complex Elasticsearch queries.
- Manage the Repository module handling physical archival units (e.g., storage units, racks, shelves), ensuring efficient tracking and space management.
- Collaborate with European stakeholders in an agile development environment to develop software solutions, review code, fix bugs and contribute to documentation efforts.

**AI Prompt Tester, Scale AI** ↗ — **Angular, Python, C++, Typescript, HTML, CSS**

Remote (Part time)  
July 2023 - Jan 2024

- Developed solutions for coding problems, ensuring code correctness and efficiency.
- Created comprehensive test cases to validate the functionality of the implemented solutions.
- Prepared problem summaries to provide context and clarity for the development team.
- Crafted detailed explanations of coding solutions, demonstrating the effectiveness of the chosen approach.

## PUBLICATIONS

- **Toward machine learning-based psychological assessment of autism spectrum disorders in school and community.** Sabbir Ahmed, Md Farhad Hossain, Silvia Binte Nur, M Shamim Kaiser, Mufti Mahmud. In: Proceedings of Trends in Electronics and Health Informatics: TEHI 2021, Pages 139-149, ↗
- **Convid-net: an enhanced convolutional neural network framework for covid-19 detection from x-ray images.** Sabbir Ahmed, Md Farhad Hossain, Manan Bint Taj Noor. In: Proceedings of International Conference on Trends in Computational and Cognitive Engineering: Proceedings of TCCE 2020. Pages 671-681. ↗
- **Artificial intelligence and machine learning for ensuring security in smart cities.** Sabbir Ahmed, Md Farhad Hossain, M Shamim Kaiser, Manan Bint Taj Noor, Mufti Mahmud, Chinmay Chakraborty. In: Data-Driven Mining, Learning and Analytics for Secured Smart Cities: Trends and Advances 2021. Pages 23-47 ↗
- **Computational intelligence in detection and support of autism spectrum disorder.** Sabbir Ahmed, Silvia Binte Nur, Md Farhad Hossain, M Shamim Kaiser, Mufti Mahmud, Tianhua Chen. In: Artificial Intelligence in Healthcare: Recent Applications and Developments 2022. Pages 179-197 ↗
- **Eligible Personal Loan Applicant Selection using Federated Machine Learning Algorithm.** Mehrin Anannya, Shahera Khatun Most, Md Biplob Hosen, Sabbir Ahmed, Farhad Hossain, M Shamim Kaiser. In: International Journal of Advanced Computer Science and Applications 2023. Volume 14, Issue 8. ↗
- **Impact, Causation and Prediction of Socio-Academic and Economic Factors in exam centric student evaluation measures using Machine Learning and Causal Analysis** Sabbir Ahmed, Md Biplob Hossen, Md Farhad Hossain (Under Review)

## PROJECTS

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- **SearchSensei: Privacy-Focused Browser Extension** using **React, Chrome APIs, OpenAI API, HTML, CSS**: Developed a Chrome extension that enhances user privacy by providing query sanitization, data minimization alerts, and configurable preferences. ↗
- Loan Sanctioning System using **NodeJS, ExpressJS, ReactJS, tensorflow.js**: Developed a web-based loan prediction app using machine learning. Users apply for loans and employees predict approval. ↗
- Machine learning-based web application for predicting students' CGPA using **NodeJS, ExpressJS, ReactJS, prime-react tensorflow.js**: The app predicts CGPA from student profile data and provides progress insights for teachers. ↗
- farhadcodes-a-CP-blog using **Java, Spring Boot, React.js**: Created a feature-rich blog implementing user authentication and content management capabilities; the platform now supports over 300 unique posts, driving substantial community engagement. ↗
- **NeuroDetect (In Development)** using **Python, Flask, TensorFlow, React**: A multi-modal web app leveraging questionnaire data, audio analysis, eye scan paths, and Fitbit data to detect Autism Spectrum Disorder (ASD) with enhanced accuracy.
- **CodeRanker (In Development)** using **NodeJS, ExpressJS, ReactJS, Python, PostgreSQL, public APIs (Codeforces, Codechef)**: A coaching tool for analyzing participants' strengths in topics like data structures and algorithms, using performance data fetched from Codeforces and Codechef APIs.
- **Micro-chain (In Development)** using **Golang, Ethereum, Smart Contracts, IPFS, MongoDB, Docker, Kubernetes**: A lightweight blockchain alternative focused on optimizing chain operations and reducing resource consumption for distributed ledger systems.

## PROGRAMMING COMPETITIONS ACHIEVEMENTS (C/C++, Algorithms, Data Structures)

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### TEAM COMPETITIONS

- Top **2.2%**, 39<sup>th</sup> out of 1747 participants, ICPC Dhaka Regional Preliminary 2021, Team: JU\_O(n<sup>3</sup>)FanClub ↗
- Top **4.3%**, 78<sup>th</sup> out of 1805 participants, ICPC Dhaka Regional Preliminary 2019, Team: JU\_DarkSideOfTheMoon ↗
- **2nd Runner-up**, Bangladesh section, IEEEXtreme 14.0 2020, Team: JuPsychosocial ↗
- **2nd Runner-up**, Bangladesh section, IEEEXtreme 13.0 2019, Team: CGPAisProbabilistic ↗
- Participated in more than **15** regional, national, and inter-university Programming Contests

### INDIVIDUAL COMPETITIONS

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- **2nd**, Bangladesh section, Leetcode Biweekly Contest 28, Handle: thehalfblo0dprince ↗
- **2nd**, Bangladesh section, Leetcode Weekly Contest 187, Handle: thehalfblo0dprince ↗
- **Google Kickstart Round B 2022**: Ranked **540<sup>th</sup>** out of **7.2k** participants. ↗
- **Meta Hacker Cup 2022**: Ranked **2588<sup>th</sup>** out of **44.1k** participants(Qualified up to Round 2) ↗
- **Codeforces**: **Top 7.89%**, Max Rating: **1641**(handle: thehalfblo0dprince) ↗
- **Codechef**: **Top 1.36%**, Max Rating: **1913** (username: frdhsn) ↗
- Solved over **2600+** programming problems on different online judges ↗

## TECHNICAL SKILLS

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Skill	Advanced	Intermediate	Basic
<b>Programming Language</b>	C, C++, Java, JavaScript, Python	TypeScript, Kotlin, SQL	Go, R
<b>Frameworks</b>	Spring, Angular	Node.js, Express.js, React	Next.js, Flask
<b>Libraries</b>	TensorFlow, pandas, OpenCV	scikit-learn, PyTorch	LangChain, LlamaIndex
<b>Databases</b>	MySQL, PostGreSQL, MongoDB	Cassandra, Redis	Firebase
<b>Security &amp; AI</b>	Secure Coding	API Security, Prompt Engineering	LLM Security Testing
<b>Others</b>	Git, Jira, Bitbucket	Docker, Kubernetes	AWS, Azure

## LEADERSHIP AND EXTRACURRICULAR ACTIVITIES

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**Competitive Programming Community, IIT, Jahangirnagar University**  
*Team Lead & Senior Trainer*

Dhaka, Bangladesh  
Mar 2019 - Current

- Coordinate contests, and teach **150+ participants** programming concepts including Graph algorithms, Data structures, Dynamic Programming, etc.

**IEEE Student Branch, Jahangirnagar University** ↗  
*Vice Chair*

Dhaka, Bangladesh  
Jan 2021 - Mar 2022

- Coordinated and hosted technical events including IEEEXtreme hackathons and cybersecurity workshops.