Jahid Hasan

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Education

Iowa State University — Iowa, USA

- **Ph.D. in Computer Science (STEM)** — Aug. 2021– Expected Summer 2026
  - **Advisor:** Dr. Manojit Pramanik, Dr. Ying Cai
- **MS in Computer Science (STEM)** — Aug. 2021–Dec. 2024
  - **Advisor:** Dr. Wensheng Zhang
  - **Dissertation** Multi-Server Oblivious RAM Approach for Secure Cloud Storage
- **MS in Entrepreneurship** (The Ivy College of Business: AACSB Accredited) — Jan. 2023–Dec. 2024

Nanjing University of Posts and Telecommunications — Nanjing, China

- **MEng in Information and Communication Engineering**, GPA: 3.85/4.00 — Sep. 2017–Jun. 2020
  - **Advisor:** Dr. Minghai Xu
  - **Dissertation:** Bulletproofs: A Non-Interactive Zero Knowledge Proof Protocol For Blockchain Security

Atish Dipankar University of Science and Technology — Dhaka, Bangladesh

- **BSc in Electrical and Electronic Engineering**, GPA: 3.90/4.00 — Jan. 2013–May 2017

Research Interests

- Artificial Intelligence in Healthcare
- Machine / Deep Learning
- Medical Image Reconstruction
- Security and Privacy in AI

Teaching Interests

- Operating/Unix Systems
- Database Management
- Computer Networking, Architecture
- Data Science and Machine Learning

Relevant Skills

- **Software & Tools**: Unreal Engine, MS Excel, Tableau, GitHub/Perforce, JIRA, MongoDB/PostgreSQL, AWS/GCP/Azure, Linux, Docker, Kubernetes, Nmap, Wireshark, Packet Tracer, Canvas/Blackboard
- **Programming Languages**: Python, C/C++/C#, Rust, Java, JavaScript, TypeScript

Teaching Experiences

Teaching Assistant/Guest Lecturer — Aug. 2021 – *p*

- **Department of Computer Science, Iowa State University** — *Ames, IA*
  - **Course:** COMS 5520: Principles of Operating Systems (Fall'24)
  - **Responsibilities:**
    - Facilitated graduate teaching in advanced OS concepts: process synchronization, virtualization, deadlock, distributed systems, fault tolerance, and replication consistency
    - Mentored graduate students research projects on concurrency control, IoT with TinyOS, container security, and distributed ML systems
    - Conducted office hours, provided one-on-one guidance, constructive feedback on assignments, and final research project
  - **Course:** COMS 3520: Introduction to Operating Systems (Spring'22, Fall'22, Spring'23, Spring'24, Fall'24, Spring'25, Fall'25)
  - **Responsibilities:**
    - Led and coordinated recitation classes for 140+ students per semester, fostering a 60% increase in student engagement through interactive platforms like Piazza and Slack

    * Guest lectured and mentored students to deepen their understanding of operating systems concepts, including xv6 OS projects (C programming), processes, scheduling policies (MLFQ, RR, stride scheduler), multithreading, concurrency, file systems, system calls, virtualization, networking, and encryption/decryption
    * Conducted office hours, provided one-on-one guidance, proctored exams, and graded assignments, contributing to a positive learning environment for all students

- **Course:** COM S 2520: Linux Operating Systems Essentials (Fall'21)
- **Responsibilities:**
    * Designed and delivered engaging lab activities for 140+ students in a hands-on Linux course, covering installation, administration, and advanced topics like kernel builds and package management
    * Assisted student learning through 14 projects covering dual boot systems, file permissions, process management, shell scripting, web server creation, network file sharing (NFS/Samba), and router configuration
    * Mentored students, facilitated communication through Piazza and contributed to their success by grading projects, exams, and assignments

Research Experience

Research Assistant (PhD Lab) Nov. 2024 – *p*

- **Biomedical Imaging Laboratory (BILab)**, Iowa State University *Ames, IA*

- Researching deep learning and foundation models to enhance clinical ultrasound and photoacoustic image reconstruction

Research Assistant (MS Thesis) Feb. 2024 – Nov. 2024

- **Dr. Zhang Lab**, Iowa State University *Ames, IA*

- Developed a multi-server ORAM model using node-splitting and parallel processing to enhance performance and security in large-scale cloud storage systems
- Implemented double encryption (AES-GCM) and piece-wise eviction processing to enhance data confidentiality and access pattern privacy

Research Assistant (Visitor) Jun. 2022 - Aug. 2022

- **Data Storage Lab (DSL)**, Iowa State University *Ames, IA*

- Developed a configuration state builder tool that generated mke2fs configuration states based on its self-dependency (SD) and cross-parameter dependency (CPD), resulting in a 25% increase in the efficiency of generating configuration states
- Designed and programmed a parallel testing framework to test a total of 25 EXT4 image file systems, resulting in a 57.6% increase in testing efficiency and identifying and analyzing 35 dependency bugs

Professional Experience

Co-Founder and Engineering Jan. 2025 – Jul. 2025

- **Tometo, Inc. (Startup)** *Remote*

- Co-founded Tometo AI, designing and leading the development of a people-focused vertical AI engineering manager solutions to streamline engineering team operations and productivity by 10x; generated $17K in profit with a 4-member cross-functional team
- Built and executed the product roadmap for a multi-agentic system, integrating custom workflows and conducting user research with 50+ startup founders to make strategic decisions for product growth and customer-centric feature prioritization

Technical Project Manager May 2023 – Nov. 2024

- **BLÜ Games (Startup) – Title: Arcane Arena** *Remote*

- Implemented project management tools to streamline cross-functional team communication, collaboration, and task tracking for deliverables
- Strategically created agile methodologies to delegate tasks and track progress, achieving a 90% successful completion rate for game design projects

- Led the QA team in crafting and executing robust testing plans, insightful reporting, and efficient closure for timely releases

Software Engineer Intern (SharePoint / OneDrive) Oct. 2019 – Jan. 2020

- **Shanghai Microsoft** *Shanghai, CN*

- Implemented and maintained automation scripts using C#, PowerShell, CSOM, JSOM, and REST APIs to provision, monitor, and optimize SharePoint and OneDrive applications
- Diagnosed and fixed complex SharePoint/OneDrive issues, contributing backend fixes and CI/CD pipeline to improve system reliability and deployment efficiency

Software Engineer Intern Jun. 2019 – Oct. 2019

- **LNX Protocol** *Remote*

- Achieved a flawless 100% bug fix rate in 2 software engineering tasks, resolving 7 critical issues through A/B testing, regression, and CI/CD pipelines in Jenkins, leveraging GitHub for version control and collaboration
- Designed and implemented a DAG-based blockchain using Rust and Substrate, integrating the ADAM consensus algorithm to optimize wallet transaction processing and query efficiency

Entrepreneurship/Leadership Experience

ISU I-Corps Fellow Mar. 2023 – Apr. 2023

- **Great Lakes I-Corps Hub** *Ames, IA*

- Conducted comprehensive customer discovery interviews to understand target market needs, pain points, and potential value propositions, leveraging insights to refine product-market fit
- Analyzed and evaluated rigorous hypothesis validation, rapidly iterating product strategies based on comprehensive customer discovery insights to optimize market fit

ISU Startup Factory Cohort 12 Fellow Aug. 2022 - Dec. 2022

- **ISU Pappajohn Center for Entrepreneurship** *Ames, IA*

- Developed and validated a comprehensive business model, including formulating a clear one-liner, value proposition, and commercial plan to present and pitch a viable startup idea effectively
- Demonstrated strong business acumen and leadership skills by executing customer discovery, market research, and financial planning tasks, culminating in creating a pitch deck and comprehensive commercialization strategy

Recent Projects

RL Environments for Computer Use | Python, LLM, MCP Jun. 2025

- Developed RL verification and evaluation environment for AI agents using MCP, and Computer Use

Jukto AI Labs | Python, LLM, Fine-tuning, Transformers, Full-stack Jun. 2025

- Built an open-source agentic research tools, reinforcement learning (RL) evaluations, computer use, and deep research frameworks

OS Reasoning Model on Hugging Face | Python, LLM, Fine-tuning, Transformers, PyTorch Jun. 2025

- Developed an 81.9M parameter large language model (LLM) based on DistilGPT-2 for operating system reasoning tasks.

GPT-2 AI Model Inference and Optimization | FastAPI, Hugging Face Transformers, PyTorch, ngrok Jun. 2025

- Built a GPT-2 inference API with batch processing, quantization, and dynamic routing using FastAPI, Hugging Face, and Colab.

SwarmSync SDK | Python, OpenAI/Gemini API, Docker, MCP, Browser-use May 2025

- Building an open-source SwarmSync multi-agent that can do all tasks autonomously to streamline startups engineering teams.

NexusFM File Manager | Python, PyQt5, CLI, GUI, PyPI Sep. 2024

- Developed advanced cross-platform file management tool with dual CLI/GUI interface, featuring operations like hashing, permissions management, and content search. Visit: PyPI

IntelliParse SaaS Application | NextJS, TypeScript, Tailwind CSS, OpenAI/GEMINI API, Firebase Jul. 2024

- Developed IntelliParse to extract information and generate insights from any documents. Visit: Product Hunt

Xv6 OS for RISC-V | C Programming Jan. 2022–Present

- Implemented and developed system calls for process management and file system access, utilizing MLFQ, RR scheduling, and multithreading principles

Volunteering/Mentoring Experience

Campus Strategist Sep. 2024 – Dec. 2024

- Perplexity AI *Hybrid*

- Led Perplexity AI's campus product growth marketing campaign, driving 600+ student signups through strategic events and partnerships, significantly expanding user acquisition and brand visibility in higher education

Mentor Feb. 2024 – Mar. 2024

- DreamUniGuide *Remote*

- Delivered and coached online lectures and provided individual guidance to diverse Bangladeshi students aspiring for data science and machine learning research in the USA

Volunteer Oct. 2023 – Dec. 2024

- Materials and Resource Department, Ames Public Library *Ames, USA*

- Maintained a well-organized library book collection, ensuring easy accessibility for patrons

Volunteer Sep. 2023 – Dec. 2024

- Food at First, First Christian Church *Ames, USA*

- Assisted in offering help and making a positive impact to feed people struggling with hunger and food insecurity

Publications

J. Hasan, M. Pramanik. "ASCENT+: Deep Learning for Ultrasound Needle Tracking Using Photoacoustic Ground Truth." *IEEE Transactions on Image Processing,* 2025 (under review).

K. Mridha, **J. Hasan**, S. D, A. Ghosh. "Phishing URL Classification Analysis Using ANN Algorithm." *IEEE* 4^{th} *International Conference on Computing, Power and Communication Technologies (GUCON),* 2021, pp. 1-7. doi:10.1109/GUCON50781.2021.9573797

J. Hasan (2019). "Overview and Applications of Zero Knowledge Proof (ZKP)." *International Journal of Computer Science and Network (IJCSN),* Vol.8(5), pp.436-440. Retrieved from: Researchgate

J. Hasan, T. Karmaker, M. I. Ahmed (2019). "Mathematical Modeling and Simulation Based System Identification of Non-minimum Phase Electro-Hydraulic Servo (EHS) System." *International Journal of Engineering Research & Technology (IJERT),* Vol.8(09), pp.189-195. doi:10.17577/IJERTV8IS090063

Pre-Print Papers

J. Hasan. "Optimizing Large Language Models through Quantization: A Comparative Analysis of PTQ and QAT Techniques." arXiv preprint arXiv:2411.06084(2024). Link to Pre-Print

J. Hasan. "Security and Privacy Issues of Federated Learning." arXiv preprint arXiv:2307.12181 (2023). Link to Pre-Print

J. Hasan. "An Analysis of Bugs In Persistent Memory Application." arXiv preprint arXiv:2307.10493 (2023). Link to Pre-Print

Abstract/Poster

Jahid Hasan Manojit Pramanik. "Ascent+: Deep Learning for Precise Needle Tracking on Ultrasound Images Trained With Photoacoustic Ground Truth." IEEE ISBI 2025.

Services

Journal Reviewer:

- [2025] Journal of Biomedical Optics, SPIE
- [2024] IEEE Open Journal of the Computer Society
- [2023] IEEE Transactions on Neural Networks and Learning Systems
- [2022] IEEE Transactions on Information Forensics and Security
- [2022] Springer Nature: The International Journal of Information Security

Media Coverage

Entrepreneurs Competition:

- [2022] Finalist at the **International Immigrant Entrepreneurs Summit**, Iowa, USA. News Article: **WeAreIowa** and YouTube Link: **YouTube**

Affiliations

Organization Name: AI/ML, CS SWE, Finance Club/Student Member

Organization Name: MBA & Specialized Masters Association (MBASMA)/Student Member

Organization Name: Computer Science Graduate Student Organization (CSGSO)/Former Faculty Senator Officer

Accomplishments

- [2024] Received Teaching Excellence Award, Department of Computer Science, Iowa State University. Certificate
- [2023] ISU National Science Foundation Innovation Corps (I-Corps) program For entrepreneurs hosted by the NSF I-Corps Hub: Great Lakes Region, Certificate
- [2023] Awarded the International Scholar Business Graduate Scholarship at Ivy College of Business, ISU
- [2022-23] Former Faculty Senator Officer of the Computer Science Graduate Student Organization (CSGSO), ISU
- [2022] ISU Startup Factory Program For Entrepreneurs - Cohort 12 Fellow, ISU Startup Factory/Research Park
- [2021] Awarded the Graduate Teaching Assistantship position at Iowa State University
- [2017-20] Received NJUPT First Level Scholarship
- [2018-19] Received Nanjing Municipal Government International Student Scholarship Award

Selected Coursework

Ph.D. in Computer Science:

- COMS 5110: Design and Analysis of Algorithms
- COMS 5310: Theory of Computation
- COMS 5590: Security and Privacy in Cloud Computing
- COMS 5610: Database Design, Management, and Research
- COMS 5730: Machine Learning
- COMS 5740: Introduction to Machine Learning
- COMS 5790: Natural Language Processing
- COMS 6730: Advanced Topics in Machine Learning
- COMS 6810: Advanced Topics in Computer Architecture

Online Courses:

- TCM Security: Practical Ethical Hacking
- Complete CCNA (200-301) Master Class
- Wireshark: Packet Analysis and Ethical Hacking

References

Dr. Manojit Pramanik

Position: Northrop Grumman Associate Professor, Department of Electrical and Computer Engineering, Iowa State University
Email: mano@iastate.edu
Phone: (515)-294-3826

Dr. Ying Cai

Position: Associate Professor, Department of Computer Science, Iowa State University
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Dr. Wensheng Zhang

Position: Associate Professor, Department of Computer Science, Iowa State University
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Phone: (515)-294-2821

Dr. Chenglin Miao

Position: Assistant Professor, Department of Computer Science, Iowa State University
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