# Neal Kaushik Sharma

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## EDUCATION

**Iowa State University** — **Ames, Iowa**

**B.S. in Computer Science, Minor in Artificial Intelligence – Honors Program** — **Expected: May 2028**

**CGPA: 3.8** - Dean's List for Academic Excellence — **Sophomore**

## COMPUTATIONAL SKILLS

**Languages:** Java, Python, C#, SQL, HTML, CSS, JavaScript

**Tools and Frameworks:** Git, .NET, Spring Boot, Postman, SSH, Azure, LaTeX

## WORK EXPERIENCE

**Software Engineer Intern – *Tata Consultancy Services*** — **June 2025 - August 2025**

- Worked as a Web Application Developer, where my main project was BrewMaster (simulated coffee store), a full-stack online retail system built from scratch using C#, ASP.NET Core MVC, SQL Server, ADO.NET, jQuery, and AJAX (GitHub).
- Developed core system features, implementing secure authentication, image uploads, password hashing, role-based access, centralized logging, and a full MVC architecture connected to real-time SQL Server to handle inventory, orders, and product management efficiently.
- Rotated with frontend, backend, database, DevOps, QA, and cloud engineers, gaining exposure to the full software development lifecycle and seeing how their workflows and tools come together in an Agile team environment, while also learning practical skills from mentors such as API development, Bootstrap, Azure cloud, and documentation and presentation skills.

## RESEARCH EXPERIENCE

***Malicious Unlearning Attacks against Predictive Uncertainty in AI Models*** — **August 2025 - Present**

*Department of Computer Science, Iowa State University*

- Researching how machine unlearning (data removal from pre-trained models) impacts model's prediction reliability in safety-critical systems.
- Implementing and comparing unlearning methods and data removal strategies on image classification models using real-world medical and benchmark datasets, focusing on model behavior, calibration, confidence shifts, Accuracy, and training time.
- Applying uncertainty estimation techniques (Deep Ensembles, Monte Carlo Dropout) and metrics such as Expected Calibration Error and Brier Score to quantify over-confidence or under-confidence of the predicted outputs and identify vulnerabilities introduced by unlearning.

***The Search for Out Bursting White Dwarfs and Their Detection Methods*** — **March 2025 - April 2025**

*Department of Physics and Astronomy, Iowa State University*

- Worked as a research assistant on a study identifying out-bursting white dwarf stars using NASA's TESS data.
- Interpreted data visualizations such as HR diagrams and brightness plots to classify star behavior. Documented findings and collaborated with peers in maintaining a catalog of analyzed targets.

## PROJECTS

**Space-Miner - 2D Java Game [GitHub]** — **October 2025 - Present**

*Personal project: A top-down survival/adventure game built entirely from scratch in Java, under active development with plans for public release.*

- Developed core gameplay systems including precise player and object movement with collision detection, mining with particles and loot drops, companion AI (A* Search Algorithm), slot-based inventory, crafting, dynamic lighting, and day/night cycle.
- Built supporting systems such as multiple game states, tile-based worlds, minimap generation, screen culling, interactive UI with item descriptions and cursor controls, breakable objects, teleporting/transition triggers, and procedural object placement.
- Implemented save/load via Java serialization, integrated sound effects and pixel art assets, and added in-engine debugging tools.

**Cy Saint's Hospital - Full-Stack Hospital Management App [GitHub] [Showcase]** — **August 2025 - December 2025**

*Developed as part of computer science coursework (COMS 3090) to streamline workflows for patients, doctors, pharmacists, and admins.*

- Worked as a backend developer in a team of four, gaining hands-on experience with Agile practices, teamwork, coordinating across roles, and meeting project deadlines to deliver a full-stack system.
- Built key features including secure authentication, role-based access, appointment scheduling, prescription-driven pharmacy with protected medications, real-time messaging with Firebase powered notifications, video calling, and a privacy-focused AI health assistant.
- Recognized as Best Project Overall (1st place) in a class of over 300 students for technical design, full-stack implementation, and teamwork.

**Network Attached Storage** — **July 2025**

*Personal NAS and server on Raspberry Pi 5 with automated backups, SSH-based remote access, and secure networking.*

- Configured OpenMediaVault on Debian Linux with shared network folders, automated daily backups (PC and remote server) including Wake-on-LAN and backup rotation, and deployed OpenVPN, lightweight web hosting, and Docker services for secure remote administration.