Raghav Ojha
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Education

- **Texas State University** San Marcos, TX
  Bachelor of Science in Computer Science with a Minor in Mathematics; GPA: 3.8 *Aug 2023 – Aug 2027*
  - **Coursework:** Algorithm Analysis, Discrete Math II, OOPs in Java, Computer Architecture
  - **Academic Achievements:** Presidential Honors Scholarship Recipient, Dean's List, Honors College Student

Experience

- **Texas State University – Office of Distance Education** San Marcos, TX
  IT Assistant *May 2024 – Sep 2024*
  - **Database Design** Designed and deployed a centralized IT asset database in **SQL** and **Microsoft Access** to track $2M+ in hardware, improving reporting accuracy by 25%.
  - **Automation** Automated provisioning and online learning workflows with **PowerShell**, **Bash**, and **Python** scripts, integrating with schedulers (**cron**, **Task Scheduler**) to streamline 100+ device setups and support video recording/remote teaching processes.
  - **Web Tools** Improved the department website by building content-auditing scripts in **Python** and **Bash** that fixed 100+ broken links, enforced integrity checks, and integrated with **Git** for version control.
- **Texas State University – University Advising Center** San Marcos, TX
  Student Advising Assistant – Computer Science *Jun 2024 – Present*
  - **Department Representation** Served as one of the first points of contact for new **Computer Science** and **Data Science** students at Texas State, offering one-on-one advising during Student Orientation.
  - **Academic Communication** Helped over 800 students and families understand academic policies, registration systems, and program options in a clear, approachable manner.

Projects

- **Lit – A Local Git Clone in Java** Github
  Java, Gradle, Bash, JUnit, SHA-1, Serialization, CLI, Agile
  - Developed a **Java**-based local version control system replicating core **Git** functionalities (`init`, `add`, `commit`, `branch`), with a custom content-addressable storage using **SHA-1** hashing and object **serialization**.
  - Engineered **CLI** support for common Git commands and automated recursive file tracking using `Tree` and `Blob` objects to manage file state changes.
  - Utilized **Gradle** for build automation and **JUnit** for unit testing, ensuring robustness of object lifecycle, commit history, and directory state management.
- **Enigma Machine Simulator** Github
  C++, STL, JavaScript, Three.js, Docker, CMake, CI/CD, OOP
  - Developed a **C++** simulator of the WWII **Enigma I** machine with accurate modeling of rotors, reflectors, plugboard wiring, and implemented rotor stepping including the double-stepping anomaly.
  - Achieved 80% unit test coverage using **Catch2** and automated builds/tests with **Docker**, **CMake**, and **GitHub Actions** for reliable cross-platform CI.
  - Engineered a realistic, interactive **3D visualization** using **JavaScript** and **Three.js**, featuring a detailed model and a command-based interface designed to communicate with the C++ encryption core.
- **MonkFish – A Zen-Inspired Chess Engine** Github
  Python, Stockfish, React, JavaScript, Bash
  - Developed a unique **Python-based** chess engine that layers a "Zen" strategy over **Stockfish**, favoring balanced positions and punishing overextensions.
  - Engineered a custom evaluation algorithm parsing Stockfish's real-time analysis tree to select moves leading to neutral or non-committal positions. Deployed with a modified **React** frontend allowing interactive gameplay.

Skills & Achievements

- **Programming Languages** Java, C++, Python, SQL, Bash, HTML, CSS, JavaScript
- **Frameworks & Libraries** Spring, JUnit, Catch2, Maven, Gradle, CMake, NumPy, Matplotlib, OAuth, JPA, Kafka
- **Development Tools** Git, Docker, Kubernetes, Linux, AWS S3 Lambda, VS Code, Vim, Jira, PostgreSQL, Jenkins
- **Hackathons** TXST Open Datathon 2025 – First Place, Austin AI Community Hackathon – Bounty Hunter Runner-up