Soham Shirish Raut

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EDUCATION

University of Washington — Expected Graduation: June 2025
Bachelor of Science in Computer Science — *Seattle, WA*
- GPA: 3.90, 9x Dean's List, Minor in Applied Mathematics
- **Relevant Coursework:** AI/ML, Data Structures and Algorithms, Statistics, Web Development, Natural Language Processing, Distributed Systems, Databases, Linear Algebra, Software Design and Implementation

EXPERIENCE

Undergraduate Research Assistant — January 2023 – Present
Paul G. Allen School of Computer Science and Engineering — *Seattle, WA*
- Pioneering the automated decomposition of complex D3 visualizations into reusable modular components, facilitating the creation of customizable, beginner-friendly visualizations from existing examples.
- Spearheaded the development of the D3 code decomposer using JavaScript, and generalized the component generation model to function seamlessly across multiple visualization types, while implementing JestJS tests.

Software Engineering Intern — July 2023 – September 2023
Candent Technologies Pvt. Ltd. — *Pune, India*
- Enhanced the automated candidate hiring system by 25% in accuracy through a proficiency-based ranking mechanism, evaluating candidates against job criteria with a focus on skills, experiences, and project outcomes.
- Developed a comprehensive event management tool using Next.js and MongoDB in an Agile environment that improved collaboration among cross-functional departments, leading to a 40% decrease in planning time.

Software Engineer - Controls Team — November 2022 – January 2024
Washington Hyperloop — *Seattle, WA*
- Constructed a robotic navigation system leveraging sensor data and microcontroller integration with Arduino, improving data processing speed by 30% for precise maneuvering in complex underground environments.

PROJECTS

333gle | *Search Engine built in C++* — June 2024
- Implemented a secure, multithreaded HTTP-based online search engine, with server networking in C/C++ featuring fast index search and logging, with data structures designed for efficient storage and information retrieval.

Spot | *Web App using AWS, Google Cloud, Microsoft Azure, and ChatGPT* — April 2024
- Reduced cloud deployment costs by up to 50% using an AI-powered cost-optimal resource recommender, leveraging JavaScript, Python, Terraform, and ChatGPT to tailor solutions based on high-level user queries.
- Enhanced cloud deployment accessibility by creating a cloud deployment system compatible with AWS, GCP, and Microsoft Azure to deploy the recommended resources, cutting learning time for beginners by over 75%.

LLM Grammar: Beyond Language Barriers | *LLM Research Project* — March 2024
- Compared grammatical features across different languages - English, Hindi, and French - to analyze whether LLMs understand grammatical structure differences across languages using Google's multilingual mT5 model.
- Conducted 4 experiments on a corpus of around 100,000 grammatical examples after training and fine-tuning to test whether understanding grammatical structure improves language translation in LLMs.

ThriftEats | *Web App, Winner of DubHacks '22 Most Commercially Viable* — January 2023
- Crafted a grocery budget management app aimed at college students by designing an innovative recipe recommender system to capitalize on ingredient deals to maximize savings for users, without compromising on user health.
- Gained expertise in Figma for web page design and seamlessly executed the integration of a JavaScript back-end, enabling the retrieval of coupon details and other relevant information from third-party APIs for the recommender.

TECHNICAL SKILLS

Languages: Python, C/C++, Java, JavaScript, TypeScript, HTML/CSS, SQL, R, MATLAB, Terraform
Frameworks: Node.js, React, Bootstrap, D3.js, Next.js, Tailwind CSS
Developer Tools: Git, Linux/Ubuntu, Unity, REST API, Figma, Arduino, Microsoft Azure, AWS
Libraries: pandas, NumPy, Scikit-Learn, TensorFlow, OpenCV