Soham Raut

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Education

University of Washington - Seattle Expected Graduation: Dec. 2026
M.S. in Computer Science *Seattle, WA*

- GPA: 3.95/4.0 Admitted to the Allen School BS/MS program starting from Fall 2025.

University of Washington - Seattle Sep. 2021 – Jun. 2025
B.S. in Computer Science (Departmental Honors), Minor in Applied Mathematics *Seattle, WA*

- GPA: 3.91/4.0, Cum Laude, Honors Thesis on Generating and Evaluating Intent-Driven D3 Tutorials

Relevant Courses: Operating Systems, Compilers, Data Structures and Algorithms, Advanced AI/ML, NLP, Computer Vision, Distributed Systems, Databases, Software Design and Implementation, Security, Networks

Experience

Teaching Assistant Jan. 2026 – Present
Paul G. Allen School of Computer Science and Engineering *Seattle, WA*

- Taught OS internals to 100+ students and led 30-person sections, covering system calls, virtualization, concurrency, and C, resulting in successful completion of kernel-level labs.
- Mentored students on debugging low-level C kernel code, resolving race conditions, syscall bugs, and memory faults, improving correctness and concurrency safety.

Research Assistant Jan. 2023 – Present
UW Interactive Data Lab *Seattle, WA*

- Built pipelines in JavaScript and Python to convert complex D3.js visualizations into reusable modular code components to facilitate the creation of customizable visualizations by beginners based on existing examples.
- Improved reusability and reliability of the component extraction model by generalizing it across diverse chart types and achieving more than 90% code coverage using JestJS unit tests along with invariant-based validation.
- Proposed a framework to measure D3.js tutorial effectiveness and developed a system to auto-generate intuitive intent-driven tutorials using Python, cutting learning time by 60% and improving D3 adoption rates by 40%.

Software Engineering Intern Jul. 2023 – Sep. 2023
Candent Technologies Pvt. Ltd. *Pune, India*

- Increased candidate evaluation accuracy by 35% by building a weighted ranking algorithm focusing on skills, experience, and project impact for multiple job types using Python and MongoDB for the internal hiring platform.
- Reduced event coordination time by 25% by developing a multi-role scalable collaborative scheduling platform using Next.js in an Agile team, streamlining cross-department workflows.

Projects

Spot | *Multi-Cloud Cost and Resource Optimizer with Auto-Deployment, DubHacks NEXT Batch 3* Apr. 2024

- Lowered deployment costs by up to 50% by building an AI-driven infrastructure recommender that translated high-level user queries into optimal configurations using JavaScript, Python, Terraform, and the OpenAI API.
- Cut setup and onboarding time for beginners by more than 70% and increased cloud usage and adoption in new developers by 10%, by building a unified deployment interface compatible with AWS, GCP, and Azure.

LLM Grammar: Beyond Language Barriers | *LLM Research Project* March 2024

- Evaluated cross-lingual grammatical understanding in LLMs by training and fine-tuning mT5 on 100K+ examples, running controlled experiments to measure translation quality.

ThriftEats | *Budget-Aware Recipe Recommender, DubHacks '22 Most Commercially Viable* Jan. 2023

- Saved student users up to 30% in grocery costs by building a recipe recommender that matches ingredients to coupons and discounts via real-time coupon data from the Spoonacular API.
- Designed a responsive frontend in Figma and implemented backend logic in JavaScript to score nutritional recipes with the maximum cost-saving opportunities.

Technical Skills

Languages: C/C++, Python, Java, JavaScript, TypeScript, SQL, Bash, R, MATLAB
Frameworks: Express.js, Node.js, React, Next.js, D3.js, Terraform, JUnit, JestJS
Developer Tools: Linux/Ubuntu, Git, QEMU, REST API, Figma, Arduino, AWS, Microsoft Azure, GCP, MongoDB
Libraries: pandas, NumPy, PyTorch, TensorFlow, Scikit-Learn, OpenCV, HuggingFace