Bhuvan Madala

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SKILLS

Languages: Python, C, C++, Java, JavaScript, TypeScript, SQL, Racket, Rust, Go
Frameworks & Tools: Git, Vue.js, React, Next.js, Spring, Node.js, Express.js, PostgreSQL, NumPy, Docker
Expertise: Clean Code, Testing, OOP, Data Analysis, Agile Software Development

EDUCATION

Northwestern University **Evanston, IL**
Bachelor of Science in Computer Science, Mathematics 3.9 CGPA *Expected June 2026*
Relevant Coursework: Machine Learning, Systems Programming, Data Structures and Algorithms, Linear Algebra, Multivariable Calculus

PROFESSIONAL EXPERIENCE

Knobull **Remote**
Software Engineering Intern – Search Engine *December 2023–April 2024*

- Developed RESTful API endpoints to facilitate communication between frontend and backend services.
- Containerized indexing microservices with Docker and orchestrated them using AWS ECS, improving scalability and deployment efficiency.
- Began migration to Elasticsearch cluster and implemented Redis caching, reducing search latency and enhancing query response times.

Beiersdorf Innovation Center **Florham Park, NJ**
R&D Intern *October 2022–June 2023*

- Developed data visualization tools and statistical models to analyze sunscreen ingredient efficacy, enhancing product development and supporting data-driven decision-making.
- Managed datasets and automated data collection workflows using Python scripts, improving research productivity for machine learning applications.
- Presented data-driven research findings on ingredient performance to the U.S. R&D team, influencing strategic development direction.

CLUBS AND ACTIVITIES

Northwestern University Robotics Club **Evanston, IL**
Computer Vision Team Co-Lead *December 2023-Current*

- Spearheaded development of an advanced binocular vision system for an autonomous lacrosse goalie robot, leveraging matrix transformations and OpenCV for 3D ball tracking and detection.
- Developed a real-time ball detection algorithm and implemented a trajectory prediction model using recursive least squares, radically improving spatial accuracy.
- Optimized the computer vision pipeline, reducing ball interception time by 30% and enhancing overall goalie performance.

PROJECTS

AlgoAdversaries
Creator

- Developed a competitive programming platform with React and Tailwind CSS frontend for responsive UI.
- Engineered Node.js and Express.js backend with RESTful API for real-time code execution and judging.
- Integrated cloud-hosted PostgreSQL database for efficient data management and user authentication.
- Implemented live code editor with real-time HTTP polling for frequent updates and cross-browser support.