

Sonika Tamilarasan

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EDUCATION

University of Illinois Urbana-Champaign	Dec. 2025
<i>Bachelor of Science in Computer Science and Economics, Minor in Statistics</i>	<i>GPA: 3.90</i>
Relevant Coursework: Data Structures, Algorithms, Machine Learnings, Operating Systems, Database Systems, Software Engineering	

TECHNICAL SKILLS

Languages: Python, Go, C++, C, JavaScript, TypeScript
Developer Tools: Git, Docker, CI/CD, REST APIs, Postman
Cloud & Databases: SQL, Firebase, GCP, AWS (S3, ECS, DynamoDB)
Frameworks: Django, Flask, Spring Boot, React, Next.js

EXPERIENCE

Software Engineer Intern	May 2025 – Present
<i>Samsara</i>	<i>San Francisco, CA</i>
<ul style="list-style-type: none">Built internal Python tools, including a web scraper for 10,000+ AWS S3 images and a LiteLLM prompt tester, accelerating model iteration by 40% and saving 12+ hours/week of manual effort.Led a phased migration strategy using a Merrily app and custom gRPC microservice, migrating detections to a modular architecture that improved system reliability and reduced crash risk during ingestion by > 50% in testing environments.Designed a decoupled detection pipeline using Go, gRPC, and LiteLLM, enabling scalable image-based detections and reducing system coupling by 70%, with support for 3x more detection types.	
Data Structures Course Assistant	August 2024 – Present
<i>Grainger College of Engineering</i>	<i>Champaign, IL</i>
<ul style="list-style-type: none">Mentored 1,000+ students by clarifying concepts, debugging errors, and guiding through data structure problemsEnhanced the CS 225 website by redesigning its UI and integrating the Discord API, improving announcement visibility and driving a 20% increase in student engagement.	
AI/ML Researcher	September 2024 – May 2025
<i>UDL and Accessibility Research Group</i>	<i>Champaign, IL</i>
<ul style="list-style-type: none">Implemented Seq2Seq framework in Python, achieving a 40% reduction in processing time for tokenization tasksDeveloped and deployed the PaliGemma AI model to convert 100+ complex mathematical images to LaTeX, increasing accessibility for 500+ students in advanced math coursesAchieved a 60% reduction in image-to-LaTeX conversion time by iterating model training and hyperparameter tuning, accelerating workflows for educators and students	
Software Engineer Intern	May 2024 – July 2024
<i>A Round Entertainment</i>	<i>Remote</i>
<ul style="list-style-type: none">Automated backend deployment pipelines using Git and CI/CD tools, cutting development-to-deployment cycles by 40% and accelerating feature rollouts to meet growing user demandIntegrated and managed RESTful APIs to support 10,000+ daily user requests with 99.9% uptime, enabling seamless functionality for user authentication, profile management, and messaging featuresOptimized database performance by redesigning Firebase schemas, reducing query execution time by 35% and enhancing real-time user interactions for a scalable mobile app environment	

PROJECTS

StudyLync <i>GCP, SQL, Google Maps API, JavaScript</i>	April 2025
<ul style="list-style-type: none">Implemented a full-stack web application using JavaScript, HTML, and CSS, enabling UIUC students to discover and join nearby study groups in real time based on geolocation and shared courses.Developed interactive map interface using Google Maps API with custom clustering logic, displaying over 500+ live study sessions with filters for course, group size, and distance.Engineered backend services on GCP Cloud SQL with spatial indexing and optimized joins, reducing query latency by over 70% during simulated load testing and supporting real-time geospatial filtering.	
John Deere Hackathon: Autonomous Vehicle <i>Python, OpenCV, Tensorflow, Git</i>	February 2024
<ul style="list-style-type: none">Developed a machine learning-powered autonomous vehicle prototype during a 36-hour hackathon, achieving 95% accuracy in detecting individuals in danger across simulated natural disaster environmentsIntegrated image processing techniques into a singular autonomous vehicle to enable precise human detection, successfully locating over 50 simulated victims and reducing false positives by 20%Optimized image analysis, cutting processing time from 3s to 1s, ensuring rapid decision-making in critical situations	