Aryan Murugesh

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SKILLS

JavaScript, Python, Java, MySQL, React.js, HTML/CSS, REST APIs, Data Structures & Algorithms, Git, GitHub, Spring Boot, Cloud Platforms, Jira

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EDUCATION

Master Of Science,Computer Engineering | *Iowa State University*   *May 2026*
Bachelors, Electronics and communication| *PES University, India*   *September 2020 - June 2024*

EXPERIENCE

Research Volunteer,Iowa State University   *May 2025 – Present*
- Designed and executed 80+ experiments on differential privacy and machine unlearning, identifying three key failure points and sharing findings to fix the three biggest causes of crashes.
- Currently researching and implementing 20+ machine unlearning methods (e.g., SFTC, DP-SGD) using Python, PyTorch,HuggingFace to analyze forget/retain behavior on CIFAR-10, MNIST, and GLUE datasets.
- responsiveness by 25% and cutting average user onboarding duration by 15 minutes.

Software Engineer intern, *Skyscend India Private Limited*   *October2023 – December 2023*
- Boosted UI performance by 30% by refactoring into modules and refactoring key dashboard components using React.js, Tailwind CSS, and Chrome DevTools.
- Collaborated with UX designers and communicated validation requirements to improve form usability; implemented rule-based checks and real-time feedback using **JavaScript**, **HTML5**, and **regex**, reducing client-side errors by **60%**.
- Collaborated with frontend and backend teams to streamline invoice data rendering by integrating RESTful APIs with React state management using Axios, enhancing data sync accuracy by **40%**.

PUBLICATION

Design and implement an efficient fingerprint authentication algorithm using SHA-512
- **Led** the design of a fingerprint authentication system using **SHA-512**, **MATLAB**, and **Verilog**, reducing spoofing vulnerabilities by **40%** through iterative testing with the research team.
- **Developed** a real-time data ingestion pipeline with **Apache Kafka** and **Spark Streaming**, processing **5TB/day** with **99.99% accuracy**, cutting data loss by **40%**.
- **Implemented** advanced feature extraction using **ridge flow** and **Gabor filters** in MATLAB, improving fingerprint recognition accuracy and decreasing false rejection rate by **38%**.

PROJECTS

Edge-Cloud Latency Optimization using IFogSim
- Reduced execution latency by **35%** in cloud-to-edge workflows by implementing fog-first task scheduling in **iFogSim (Java)**.Automated multi-node deployments with **15+ reusable Ansible modules**, cutting setup time by **60%**.
- Designed a secure, low-latency authentication system in **Java** handling **10,000 concurrent users** with **2ms response time**, reducing failure rates by **15%**.

AI-Powered Video Generation using Stable Diffusion
- Generated 12+ AI-driven videos from text prompts using **Stable Diffusion v1.5**, **Deforum**, and **Hugging Face Transformers** in Python; improved frame coherence by **32%** by tuning seed strength and noise steps.
- Reduced rendering time by **45%** via **XFormers optimization**,GPU acceleration on **Google Colab**,batched frame processing; automated the pipeline using **Python** and **FFmpeg**, cutting generation time by **75%**.

Consent Lens
- Programmed a Chrome Extension using Vanilla JavaScript, MutationObserver, and the Performance API to detect and classify third-party tracking elements across webpages in <150ms, improving user visibility into pre-consent trackers.
- Consolidated tracker signals across 50+ real-world sites and built a responsive floating dashboard UI to display detection results; codebase published on GitHub and structured with ES6 best practices.