

Mrithunjay Tanish Shanmuganand

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Full-stack and AI engineer, incoming first-year at the University of Washington. Two software internships shipping production education platforms, plus LLM agent infrastructure: MCP servers, hybrid retrieval, and multi-tenant systems used by real organizations.

EDUCATION

University of Washington <i>B.S. Informatics (Information Systems)</i>	June 2030 Seattle, WA
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EXPERIENCE

Project Lead <i>University of Washington, Sensors, Energy and Automation Laboratory</i>	Jul. 2025 – Feb. 2026 Seattle, WA
- Cut financial-form completion time by 70% for 80,000+ UW stakeholders by designing pre-fill and policy-check automation algorithms in Python, leading a 5-engineer team from design through deployment - Enabled the reimbursement tool to scale across departments without rewrites by architecting a modular, service-oriented framework, and established Git standards, GitHub Actions CI/CD, and documentation for a distributed team	
Software Engineer Intern <i>Kollegio AI</i>	May 2024 – Aug. 2024 Remote
- Reduced onboarding friction by 40% by engineering full-stack authentication pipelines with Flask, Next.js, and MongoDB using JWT and Google OAuth, shipped into an AI education platform serving 300,000+ students - Eliminated authentication failures across distributed backend services by implementing scalable REST API and session workflows deployed through CI/CD on Azure; selected as 1 of 20 engineers from 5,000+ applicants	
Full Stack Engineer Intern <i>Cledge</i>	Jun. 2023 – Jan. 2024 Seattle, WA
- Increased counselor workflow efficiency across 3 integrated platforms by building full-stack admissions and financial-aid tools with Flask, Next.js, React, MongoDB, and Azure through end-to-end CI/CD pipelines - Reduced production bug turnaround by implementing structured debugging and automated testing protocols with a 4-engineer team across distributed frontend and backend services	
Founder & President <i>StuImpact</i>	Feb. 2023 – Present Sammamish, WA
Expanded a student-led nonprofit's reach to 10,000+ students across the US and Asia by launching STEM and entrepreneurship programs and shipping the platform behind them, directing \$20,000+ in funding	

PROJECTS

AgentMemorySync <i>Python, FastAPI, MCP, SQLite FTS5, Embeddings, RAG</i>	2026 github.com/mrithunjay26/agents-memory-sync
- Built an MCP server and FastAPI dashboard that pool Claude Code and Codex CLI agent histories into one canonical working set, eliminating redundant context re-derivation and flagging cross-agent conflicts on concurrent file edits - Enabled rephrased queries to surface passages sharing no exact keywords by implementing hybrid retrieval that fuses SQLite FTS5/BM25 lexical ranking with 256-dim hashed n-gram embedding cosine similarity via reciprocal rank fusion - Caught retrieval regressions before release by building a versioned 180-query labeled benchmark across 6 task categories scoring Recall@5, nDCG@10, MRR, and p50/p95 latency, and a 106-test pytest suite covering store, API, dispatch, and migrations - Enabled code-aware agent queries by indexing repositories incrementally with AST-derived Python symbol graphs (calls, references, inheritance, test links) and content-hash invalidation; secured multi-user deployment with per-repo RBAC, secret redaction, and SHA-256 hash-chained audit logs	
OpenPath <i>Next.js, TypeScript, Prisma, PostgreSQL, Auth.js, Vercel</i>	2025 – 2026 github.com/mrithunjay26/openpath-lms
- Expanded free access to teaching resources for 20+ grassroots nonprofits by architecting a multi-tenant LMS with isolated workspaces, role-based access control, and encrypted credential storage - Migrated from Flask to Next.js, TypeScript, Prisma, and PostgreSQL with zero data loss, redesigning the data model for full tenant isolation	
EssayPromptsAPI <i>FastAPI, Python, Selenium, MongoDB</i>	2025 github.com/mrithunjay26/EssayPromptsAPI
Served college essay-prompt data to 500+ accounts by building a FastAPI service with Selenium scraping pipelines, MongoDB caching to cut repeat-query latency, and API-key authentication	

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Java, C#, SQL, HTML/CSS
Frameworks: React, Next.js, Node.js, FastAPI, Flask, Tailwind CSS
AI & ML: MCP servers, LLM agent orchestration, hybrid retrieval (BM25 + embeddings), retrieval evals (nDCG@10, MRR), TensorFlow, scikit-learn
Databases: PostgreSQL, SQLite (FTS5), MongoDB, Prisma, Firebase
Tools: Git, GitHub Actions, CI/CD, Vercel, Azure, pytest, REST APIs, JWT / OAuth, RBAC, AST static analysis, uvicorn / ASGI
Spoken Languages: English (Native), Spanish (Full Professional), Tamil (Professional Working)