PARTH KATIYAR

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EDUCATION

Thapar Institute of Engineering and Technology — Patiala, Punjab
Bachelor of Technology in Computer Science and Engineering — *Aug. 2023 – June 2027*

EXPERIENCE

Samsung R&D — May 2026 – July 2026
SWE Intern — *Bangalore*

- Designed an end-to-end **PyTorch/Diffusers** GenAI robustness framework for deepfake prevention, combining controllable image transformations with face-recognition and image-editing models to analyze diffusion model behavior.
- Built reproducible evaluation pipelines across **InstructPix2Pix, FLUX, ArcFace, and DeepFace** with seeded experiments, batch execution, and automated comparisons for systematic GenAI evaluation.

Samsung R&D — Jan. 2025 – Dec. 2025
Intern – PRISM Program — *Bangalore*

- Built and shipped **3 Generative AI systems** under Samsung PRISM – Worklet Generator Agent, KnowledgeForge, and Data-Driven Technology Roadmap – with **Worklet Generator Agent and KnowledgeForge** evaluated in the **Excellence category**.
- Developed reusable **LangGraph/FastAPI GenAI systems** with agentic workflow orchestration, tool calling, multi-format ingestion, hybrid retrieval, spreadsheet reasoning, automated research synthesis, and external web/API integrations.

Defence Research and Development Organisation (DRDO) — June 2025 – Dec. 2025
SDE Intern — *New Delhi*

- Built an AI-driven expert recommendation platform combining **BERT-based semantic embeddings with a hybrid ranking pipeline** to automate interview panel formation, reducing manual expert selection time from **8–9 hours to 15 minutes** per request.
- Engineered the **Node.js/Express/PostgreSQL** backend and automated **IRINS data-ingestion pipeline** for expert, publication, panel, and candidate workflows, expanding searchable expertise beyond internal DRDO records.

Sentinal Innovations — July 2024 – Aug. 2024
SDE Intern — *Patiala*

- Developed backend modules for the company's main website, implementing authentication flows and core application routes for production-facing user workflows.

PROJECTS

KnowledgeForge – Privacy-First Document Query Engine | *GitHub* | *LangGraph, FastAPI, ChromaDB*

- Built **KnowledgeForge**, a privacy-first agentic intelligence platform **adopted by multiple Samsung teams** for internal document intelligence, turning private multi-format knowledge bases into grounded, source-cited answers.
- Designed a hybrid retrieval pipeline combining **semantic search, BM25, reciprocal-rank fusion, cross-encoder re-ranking, and spreadsheet-aware SQL querying** across structured and unstructured knowledge bases.

Worklet Generator Agent | *GitHub* | *LangGraph, FastAPI, LLMs, MongoDB*

- Built a **LangGraph-orchestrated agent pipeline** that transforms prompts, uploaded files, and links into structured worklets using planning, tool calling, parallel web search, LLM synthesis, reference generation, ranking, and file generation workflows.
- Engineered the **FastAPI backend** with asynchronous input processing, structured LLM outputs, approval-gated search workflows, MongoDB-backed data handling, and traceable source/reference generation for automated research synthesis.

WarnWire – Multi-channel Error Alerting SDK | *npm* | *GitHub* | *TypeScript, Node.js*

- Published **WarnWire** on npm, a typed **TypeScript error observability SDK** for routing production errors to Discord, Telegram, email, and generic webhooks through pluggable providers and severity-based delivery rules.
- Engineered **SHA-256 fingerprinting, in-memory deduplication, bounded async queues, exponential-backoff retries, recovery alerts, and redaction** with Pino/Express integrations for reliable production error delivery.

TECHNICAL SKILLS

Languages: Python, Java, Go, JavaScript, TypeScript, SQL
AI Systems: LLM Agents, Agentic Workflows, RAG, Tool Calling, Hybrid Retrieval, Embeddings, Re-ranking, Model Evaluation, Diffusion Models
Frameworks/Libraries: LangChain, LangGraph, PyTorch, FastAPI, Flask, Express.js, React.js, REST APIs
Engineering: Linux, AWS, Docker, Kubernetes, Git, WebSockets
Databases: PostgreSQL, MongoDB, Redis

POSITIONS OF RESPONSIBILITY

- Technical Head at MLSC, Thapar's programming club: Organized various dev events and workshops and guided 100+ juniors in their development journey.

ACHIEVEMENTS

- Winner of **Smart India Hackathon 2024** among 400+ competing teams for developing an AI-driven expert recommendation engine; solution adopted by DRDO and converted into a **6-month SDE internship** at RAC, DRDO.
- Secured a **Top 10 position among 400+ teams** in HackByte 2.0, organized by IIIT Jabalpur.