Manikandan Gunaseelan

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Education

University of Colorado, Boulder	**August 2025 – May 2027**
MS in Computer Science	*GPA : -*
BITS Pilani, K K Birla Goa Campus	**August 2018 – July 2022**
BE in Electronics and Communication Engineering	*GPA : 8.05/10*

Technical Skills

Languages: Python, Java, C/C++, JavaScript, SQL, Bash, HTML/CSS
Libraries & Frameworks: PyTorch, TensorFlow, Spark Streaming, Flask, Matplotlib, pytest
Cloud & Big Data: Google Cloud Platform (GCP), Apache Spark, Hadoop, Google Kubernetes Engine (GKE), AWS Lambda, Step Functions, Amazon Bedrock
Messaging & Storage: RabbitMQ, Redis, Firestore, Google Cloud Storage (GCS), PostgreSQL, SQLite
DevOps & Tools: Docker, Git, Postman, Terraform, Linux, Cisco IOS-XR, OpenSearch, Transcribe
Networking: gRPC, NETCONF, gNMI, Cisco Telemetry

Experience

Cisco Systems   **January 2022 – June 2025**

Software Engineer II
- Pioneered the implementation of **Combinatorial Interaction Testing** for networking protocols: reducing test run times by 77%, increasing pre-release bug detection by 31%, and increasing code coverage 3x
- Selected as part of a 5-member team to resolve an extremely high-priority Telemetry issue for a key client, **Google**, impacting business worth $10M+
- Developed tools in **Python** which enhanced telemetry data collection by providing robust APIs for multi-collector operations with huge volumes of data, integrating **matplotlib** for comprehensive visualization

Software Engineer I
- Authored and maintained **pygnoi**, a Python library adopted by Cisco's network automation teams to interface with gNOI services, simplifying RPC integration into larger automation frameworks
- Delivered internal training sessions on Object-Oriented Programming principles, time complexity analysis, and advanced **Python** programming techniques to improve code quality across the team

Technical Undergraduate Intern
- Built a web application using **Flask, JavaScript** and **HTML/CSS** for tracking operational data of 60+ automation packages

Projects

TempoMind : AI-Powered Strava × Spotify Orchestrator | *CU Boulder*   **Ongoing**
- Building a distributed cloud service integrating the **Strava** and **Spotify APIs** to synchronize workout intensity with adaptive music playback using **TensorFlow** and **Spark Streaming**
- Deploying microservices on **Google Kubernetes Engine (GKE)** with **RabbitMQ**, **Redis**, and **Firestore** for real-time event processing, personalized feedback, and scalable orchestration

SemEval-2026 Task 9 : Multilingual Online Polarization Detection | *SemEval*   **Ongoing**
- Developing **transformer-based multilingual models** (**mBERT**, **XLM-R**, **DeBERTa**) for **binary, multi-label, and manifestation-level classification** of polarized discourse on social media
- Implementing preprocessing pipelines with **Hugging Face**, **PyTorch**, and **spaCy** to handle cross-lingual tokenization, label imbalance, and contextual noise in multilingual datasets

Object-Oriented Design Patterns in a Mini 2D Java Game Prototype | *CU Boulder*   **Ongoing**
- Researching the use of Object-Oriented design patterns — **Factory**, **State**, **Observer**, and **Component** — in game engines like **Unity** and **Godot**
- Using these patterns to develop a modular game engine to build a simple **2D shooter** and **platformer** game in **Java**

AWS GameDay Hackathon (Top 5 Finish) | *Amazon*   **September 2025**
- Prototyping a **GenAI-powered healthcare app** leveraging **Amazon Bedrock (Nova Pro/Lite)**, **OpenSearch**, and **Transcribe**, enabling retrieval-augmented search and AI-driven speech analytics
- Implementing **serverless, event-driven pipelines** with **AWS Lambda**, **Step Functions**, **IAM**, **S3**, and **Guardrails**, ensuring schema-consistent GenAI outputs, robust observability, and secure, scalable cloud operations

Certifications

Google IT Support Professional Certificate | *Coursera - Google*
Introduction to Data Analytics for Business | *Coursera - CU Boulder*