



# SENESH HANSANA

AI/ML - ENGINEER

 [Portfolio](#)

 [Github](#)

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,Nugathalawa

## SOFT SKILLS

- Communication
- Collaboration
- Problem-Solving
- Critical Thinking
- Adaptability
- Leadership
- Organization
- Negotiation
- Innovation
- Interpersonal Skills
- Presentation

## HEARD SKILLS

- Programming Language
- AI/ML Frameworks, Libraries, and Domains
- Backend Development
- Mobile Development
- Frontend Development
- Edge Computing & IoT
- DevSecOps
- Tools & Platforms
- Quality Control Analysis
- Finite Element Analysis
- 3D Modeling
- AutoCAD / CAD
- Data Management

## LANGUAGE

- English
- Sinhala

## About Me

Innovative AI/ML Engineer with proven experience designing and deploying production-grade NLP, LLM, and computer vision systems. Skilled in building scalable microservices backends, optimizing transformer models, and delivering end-to-end AI solutions with modern MLOps practices. Passionate about advancing emotion-aware AI and Retrieval-Augmented Generation (RAG) to create intelligent, human-centric applications. Seeking to leverage technical expertise and research-driven problem solving to contribute to cutting-edge AI initiatives in industry or academia.

## WORK EXPERIENCE

### Freelance AI Developer

E2Nextgen  
February 2024 - Present

- Fine-tuned YOLO architectures (v5) for custom object detection, increasing Mean Average Precision (mAP) by 20-30% through rigorous hyperparameter optimization.
- Conducted Exploratory Data Analysis (EDA) on 1,000+ images to identify class imbalances, implementing augmentation strategies that reduced edge-case prediction failures by 30%.
- Collaborated on deployments, reducing inference time by 30% through optimization techniques.

### Software Engineer

Falconet Ltd  
October 2024 - December 2025

- Engineered multi-agent GenAI pipelines for bulk content generation, reducing manual entry time by ~70% and processing 10,000 assets weekly.
- Developed multiple ML-powered Chrome extensions to automate dynamic web scraping, improving extraction reliability by 90% over legacy scripts.
- Architected a real-time multi-vendor platform with secure payments and WebSockets, supporting 1000 concurrent users with sub-second latency.

### Software Engineer Intern

Infact Solutions (pvt) Ltd  
April 2024 - October 2024

- Developed and optimized REST APIs for a microservices e-commerce platform, reducing average endpoint response time by ~30% through efficient database query indexing.
- Diagnosed and resolved critical data flow bottlenecks between services, eliminating cross service timeouts and improving data synchronization accuracy to 99%.
- Enhanced system reliability under high load (5,000+ daily requests) by implementing Redis caching, which reduced core database load by approximately 40%.

# PROJECTS

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## Summar Note – AI-Powered Document App

- Built a Hybrid RAG pipeline (LangChain/LangGraph), improving retrieval precision by 40%.
- Reduced LLM hallucinations by 30% via robust document parsing and chunking.
- Deployed local T5 inference for secure, API-free NLP processing.

## Multi-Task BERT LLM – Emotion & Sentiment Analysis

- Built a shared-encoder MTL model, reducing memory footprint by 60%.
- Boosted F1-score by 15% via progressive unfreezing and dynamic loss weighting.
- Improved rare emotion class generalization using partially labeled data.

## Fast Summarizer – Extractive Text Summarization Engine

- Built a custom TextRank summarizer, improving information retention by 80%.
- Achieved <50ms summarization latency via NumPy optimizations.
- Eliminated LLM API costs with a fully local FastAPI inference service.

## oxgpu – Cross-Platform GPU Computing Library

- Built a CUDA-free, cross-platform GPU tensor runtime in Rust (wgpu).
- Accelerated Python tensor ops by ~50× via PyO3 GPU bindings.
- Reduced compute overhead by 40% using memory-safe GPU shaders.

# RESEARCHES & PUBLICATIONS

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## Demographic Determinants of Olympic (Summer/Winter) Success: An Analysis of Age, Height, Weight, and Medal Achievements

- Conference: Undergraduate Research Symposium of Technology & 3rd Applied Sciences Undergraduate Research Symposium URSTech & APSURS 2024  
[Researchgate](#)

## Usage of ChatGPT in Educational Activities: A Study Based on University Students

- Conference: 9th International Conference of Sabaragamuwa University of Sri LankaAt, Colombo, Sri Lanka - 2023 - [Researchgate](#)

# EDUCATIONAL QUALIFICATION

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## Bachelor of Information and Communication Technology Honours degree program

### Uva Wellassa University of Sri Lanka

- Specialization on Business Intelligence (**Deep learning / Machine learning**).
- Thesis on "Emotion-Aware Conversational AI: Enhancing Empathetic Dialogue Systems through Emotion Intensity Scoring and Response Optimisation"

# SKILLS

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- **Programming Languages:** Python (Expert), Java (Expert), C++ (Expert), Rust(Expert)Scala (Intermediate), R (Advanced), SQL (Expert)
- **AI/ML Frameworks, Libraries, and Domains :** TensorFlow, PyTorch, Scikit-learn, Transformers, Unsloth, LoRA, LangChain, LangGraph, ChromaDB, PgVector, Natural Language Processing, Large Language Models, prompt engineering, vector databases, Convolutional Neural Networks, Fine-Tuning, Retrieval-Augmented Generation(RAG),
- **Backend Development** – FastAPI, Express (Node.js), NestJS, REST APIs, Microservices, WebSockets
- **Frontend Development** – React, Next.js, Flutter
- **DevOps & Cloud** – Docker, AWS, Linux, MLflow, CI/CD
- **Tools & Platforms** – GitHub, Hugging Face, Postman
- **Databases** – SQL (MySQL and PostgreSQL) and NoSQL (MongoDB)
- **Soft Skills** – Time Management , Critical Thinking , Communication, Agile

# DECLARATION

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I Hereby declare that all the details mentioned above are in accordance with truth and fast as per my knowledge and I hold the responsibility for the correctness of the above mentioned particulars.