

# Ruthran RAGHAVAN

Chief AI Scientist



## Profile Summary

Chief AI Scientist with 10+ years of experience designing, developing, and deploying enterprise-grade AI systems. Expert in LLM-powered applications, advanced Retrieval-Augmented Generation (RAG) pipelines, and complex multi-agent systems using LangChain, LangGraph, and OpenAI's ecosystem. Proven ability in high-impact AI automation, combining LangGraph agents with Playwright and Playwright MCP for robust web automation. Recognized for building industry-scale AI agents for automation, predictive analytics, and intelligent decision-making that deliver measurable ROI.

Specializes in integrating open-source models (DeepSeek, LLaMA, Mistral) and enterprise AI tools (Gemini, GitHub Copilot) into scalable real-world applications. Adept at developing parallel, looping, and collaborative AI agents to solve high-complexity workflows. A leading corporate trainer, having delivered 10,000+ hours of AI and Generative AI training to over 5,000 learners worldwide, enabling organizations to achieve up to 10x productivity improvements through AI adoption.

## Experience

### Chief AI Scientist at HERE AND NOW AI

06/2018 – Ongoing

- Built custom **AI agents** for various automation tasks, significantly streamlining operations and reducing manual effort.
- Developed and maintained both **MCP (Model Context Protocol) servers and clients**, ensuring robust and scalable communication infrastructure.
- Architected and deployed **180+ AI agents** across sectors including finance, healthcare, education, and manufacturing, leveraging multi-agent orchestration with LangGraph.
- Designed and delivered hands-on training programs on building enterprise-ready LLM-powered applications using LangChain, LangGraph, and OpenAI libraries.
- Implemented large-scale RAG systems integrated with Elasticsearch and Haystack, boosting search and retrieval accuracy by over 40%.
- Developed AI automation frameworks that reduced operational costs by 50% in client organizations.
- Integrated GitHub Copilot to accelerate code generation, achieving 10x faster delivery and reducing defect rates by 35%.
- Led the **Probot** project—a multimodal AI professor capable of natural conversation, adaptive curriculum delivery, and speech synthesis for personalized learning.
- Built predictive maintenance AI agents that increased equipment uptime by 20% in industrial deployments.
- Created reinforcement learning-based optimization models for resource allocation, improving efficiency by 25%.
- Spearheaded the adoption of MLOps practices, reducing deployment time from weeks to hours through CI/CD pipelines.
- Authored white papers on ethical AI development and secured two provisional patents in multi-agent systems.
- Managed cross-functional teams of 15+ AI/ML engineers, data scientists, and DevOps specialists.

## Data Scientist

### HERE AND NOW – The Language Institute

07/2011 – 12/2023

- **Advanced Predictive Modeling & Deployment:** Architected, developed, and productionized diverse predictive systems using state-of-the-art ML/DL, including **logistic regression, decision trees, SVM, CNNs**, and **RNNs** for classification, interpretability, high-dimensional data, and temporal analysis.
- **Pioneering AI in Personalized Education:** Built and fine-tuned complex **neural network models** for edu-tech, including **learner performance prediction** and designing sophisticated engines for **personalized learning path recommendations**.
- **Developing AI-Powered Language Assessment:** Led NLP application to create novel **AI-powered language evaluation systems**, boosting assessment accuracy by **30%** over manual methods.
- **Real-Time Data Visualization & Performance Monitoring:** Developed comprehensive **analytics dashboards** using Python (**Pandas, Matplotlib**) to track critical real-time metrics (e.g., **learner engagement, outcomes**), providing actionable stakeholder insights.
- **Operational Efficiency through AI Integration:** Championed **AI-driven automation** into core workflows, resulting in a measurable **40% reduction in manual processing time** and significant cost savings.
- **Strategic Data Mining for Learning Optimization:** Employed rigorous **data mining techniques** on large datasets to identify **learning patterns**. This intelligence optimized course structure, leading to a verifiable **25% increase in course completion rates**.

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## Education

### M.Sc. Statistics & Psychology – Madras University, India (August 2010 – April 2012)

- **Advanced Research & Modeling:** Conducted research utilizing sophisticated statistical methods, including T-tests, linear and logistic regression, and Support Vector Machines (SVMs).
- **Predictive Analytics:** Developed and evaluated predictive models to forecast cognitive performance based on extensive behavioral datasets.
- **Computational Cognitive Science:** Applied multivariate analysis, regression modeling, and supervised machine learning techniques to simulate and understand decision-making processes in AI architectures.
- **Specialized Expertise:** Gained deep expertise in statistical modeling and computational methods through research in cognitive neuroscience.
- **Learning & Memory Systems:** Employed clustering algorithms, regression models, and hypothesis testing to investigate human learning and memory systems.
- **AI Interaction Design:** Successfully bridged cognitive process models with AI architectures to create more intuitive and human-like interaction designs.

## Projects & Innovations

1. Trained **5,000+ AI researchers and data scientists** in enterprise AI development.
  2. Created multi-agent LangGraph workflows for autonomous enterprise operations.
  3. Developed RAG-based systems with 40%+ improved retrieval accuracy.
  4. Built AI-powered evaluation systems with CNNs and RNNs for enhanced assessment.
  5. Integrated GitHub Copilot to deliver 10x productivity gains for development teams.
  6. Led the **Probot** AI Professor project for scalable, adaptive learning experiences.
  7. Designed predictive maintenance AI agents for industrial clients.
  8. Built reinforcement learning agents for resource optimization.
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## Technical Skills

### Artificial Intelligence & Machine Learning

- Frameworks: PyTorch, TensorFlow, Keras, scikit-learn
- LLMs: GPT-5, LLaMA, Mistral, DeepSeek, Kimi Gemini 3 Pro, Claude Sonnet & Opus 4.5
- AI Development: LangChain, LangGraph, Hugging Face Transformers
- RL & Retrieval: OpenAI Gym, RLlib, Elasticsearch, Haystack
- Expert with MCP servers building and automation using AI Agents (Intelligent Automation Expert)

### Data Science

- Python, C++, Pandas, NumPy, Matplotlib, Scikit-learn, TensorFlow, PyTorch, R, SQL, Keras
- Machine Learning Algorithms (Linear Regression, Logistic Regression, Decision Trees, Random Forests, Support Vector Machines, K-Means Clustering, Neural Networks, Deep Learning, Gradient Boosting)
- Statistical Analysis, Data Mining, Data Visualization

### Software Development

- Frontend: ReactJS, Angular, Next.js
- Backend: Node.js, TypeScript, Python, Java
- AI Chatbots: LangChain, OpenAI, Google Generative AI
- AI Agents: LangGraph, Google ADK, Crew AI, Microsoft AutoGen.
- Spring AI, Langchain4j

**Deployment:** Docker, Kubernetes, Self Hosting, Microsoft Azure

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## Training & Impact

- Delivered **10,000+ hours** of AI training to **5,000+ learners** globally.
  - Conducted **5,400+ hours** of Generative AI training for **2,700+ learners**, improving delivery speed by up to 50%.
  - Partnered with Agilysys, Metriqe, Radial Omni Channel, OPG Power, Indian Army, Amazon, Renault, Société Générale, Saint-Gobain, and leading universities to implement AI-driven transformation strategies.
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