



PROFESSIONAL SUMMARY

Computer Science and Engineering (Honours) student specializing in Artificial Intelligence and Machine Learning at RV University with hands-on experience in designing and developing AI-powered software solutions. Skilled in Python, FastAPI, Machine Learning, Deep Learning, Generative AI, Large Language Models (LLMs), Computer Vision, and Full-Stack Development. Successfully developed innovative projects including VidyaTid, an AI-powered personalized learning platform; AI Contract Copilot, an intelligent legal contract analysis system; AI Raitha Mitra, an agricultural intelligence platform; and ARI Sync, a real-time AI coaching engine for skill acquisition. Completed a Generative AI internship at Broadrange.AI, where I developed an AI-powered stock market analysis and prediction platform integrating LSTM models with Large Language Models. Passionate about building scalable AI systems that solve real-world problems and seeking opportunities as a Software Development Engineer (SDE) or AI/ML Engineer to contribute to innovative, high-impact technology solutions.

KEY EXPERTISE

Software Development Problem Solving Internet of Things Raspberry Pi OpenCV Computer Vision
Cloud Computing Docker Github Git PostgreSQL LangChain PyTorch TensorFlow REST APIs FastAPI
Natural Language Processing (NLP) Python Artificial Intelligence C++ Machine Learning Deep Learning
Generative AI Large Language Models (LLMs) Retrieval-Augmented Generation (RAG)

EDUCATION

RV University B.Tech. - CSE - Artificial Intelligence and Machine Learning CGPA: 7.92 / 10	2023 - 2027
NEW SRI CHAITANYA PU COLLEGE, HAVAMBAVI SIRUGUPPA ROAD, BALLARI, Ballari 12 th DEPARTMENT OF PRE-UNIVERSITY EDUCATION Percentage: 91 / 100	2022
SMIORE HIGH SCHOOL DEOGIRI, Ballari 10 th KSEEB Percentage: 87.84 / 100	2020

AWARDS AND SCHOLARSHIPS

- N/A

INTERNSHIPS

Broadrange.AI IT / Computers - Software Generative AI Intern	01 Jun, 2024 - 31 Aug, 2024
Key Skills: OpenAI API Python Streamlit LangChain Stock Price Prediction Generative AI LSTM TensorFlow	
• Developed an AI-powered stock market analysis platform combining LSTM-based stock price prediction with Generative AI (OpenAI GPT) to deliver automated financial insights. • Built an interactive Streamlit dashboard featuring real-time stock visualization, technical indicators (SMA, EMA, Bollinger Bands, and VWAP), and AI-generated investment recommendations. • Integrated LangChain, OpenAI API, and Yahoo Finance to perform intelligent financial analysis, technical and fundamental analysis, and AI-assisted decision support for investors. • Applied Machine Learning, Deep Learning, and Time-Series Forecasting techniques while collaborating with industry mentors under the RV University International Collaboration Program.	

PROJECTS

VidyaTid – AI-Powered Personalized Learning Platform

01 Dec, 2025 - 02 Jul, 2026

Mentor: Independent Development | Team Size: 3

Key Skills:

- Python
- FastAPI
- Artificial Intelligence
- Machine Learning
- Generative AI
- LLMs
- RAG
- Vector Database
- PostgreSQL

Project Link: <https://vidyatid.in>

- Developed VidyaTid, an AI-powered personalized learning platform designed to enhance competitive exam preparation through Generative AI and intelligent educational workflows.
- Architected scalable backend services using FastAPI, PostgreSQL, Redis, and pgvector to enable AI-driven content retrieval and personalized learning experiences.
- Implemented Retrieval-Augmented Generation (RAG) pipelines integrated with Large Language Models (LLMs) to deliver contextual question answering, AI-powered tutoring, and automated explanation generation.
- Developed semantic search capabilities, REST APIs, and cloud-native deployment using Cloudflare, ensuring scalable, secure, and high-performance AI services.
- Built intelligent educational workflows supporting personalized study recommendations, adaptive learning, and AI-powered doubt resolution using modern AI technologies.

ARI Sync – A Real-Time AI Coaching Engine for Form-Based Skill Acquisition

21 Jan, 2026 - 26 May, 2026

Mentor: Prof.Monesh N | Team Size: 4

Key Skills:

- Artificial Intelligence
- Computer Vision
- Human Pose Estimation
- BlazePose
- MediaPipe
- LLMs
- FastAPI
- TypeScript
- React.js
- PostgreSQL
- Ollama
- Python
- Augmented Reality
- REST APIs
- WebSockets

- Developed ARI Sync, a privacy-first real-time AI coaching platform that transforms instructional videos into interactive coaching experiences using Computer Vision and Generative AI.
- Designed an AI pipeline supporting YouTube videos, PDFs, DOCX, PPTX, and uploaded videos by extracting exercise segments, speech transcripts, posture blueprints, and AI-generated coaching flashcards.
- Implemented real-time human pose estimation using MediaPipe BlazePose to track 33 body landmarks at ~30 FPS and compare user movements against expert demonstrations for posture correction.
- Built a biomechanics-based form evaluation engine achieving ~2.5 ms inference latency, delivering instant AI-powered feedback and contextual voice coaching using locally deployed Qwen2.5-7B LLM.
- Integrated Faster-Whisper, Ollama, MediaPipe Selfie Segmentation, and Three.js to provide offline speech transcription, AI coaching, augmented reality guidance, and privacy-preserving on-device inference.
- Developed scalable backend services using FastAPI, Socket.IO, Celery, Redis, and PostgreSQL, while building a responsive frontend with React, TypeScript, Tailwind CSS, and WebAssembly.
- Achieved ~30 FPS live pose estimation, ~2.5 ms form-check latency, ~1.9 s AI voice feedback, and nearly 100% repetition detection accuracy, with a modular architecture extensible to rehabilitation, sports coaching, industrial training, and skill acquisition.

Creeper X – AI-Driven Quadruped Robot for Hazardous Environment Exploration

26 Jan, 2025 - 01 May, 2025

Team Size: 3

Key Skills:

- Python
- Raspberry Pi
- Computer Vision
- OpenCV
- TensorFlow Lite
- Artificial Intelligence
- Internet of Things
- Robotics
- Embedded Systems
- Servo Motor Control
- Object Detection

- Developed Creeper X, an AI-powered quadruped robot for inspection and navigation in hazardous, confined, and inaccessible environments using Raspberry Pi 4.
- Engineered a bio-inspired locomotion system with an eight-servo actuation mechanism, enabling stable gait control and efficient mobility across uneven terrain.
- Integrated OpenCV, TensorFlow Lite, and onboard vision systems to perform real-time object detection, obstacle avoidance, and intelligent environmental perception.
- Built Wi-Fi-enabled teleoperation and remote monitoring features while designing a modular robotics architecture extensible to autonomous navigation, SLAM, AI-based path planning, and disaster-response operations.

Raitha Mitra – Intelligent Agricultural Assistance Platform

01 Jan, 2024 - 30 Apr, 2024

Team Size: 4

Key Skills:

- Python
- TensorFlow
- Machine Learning
- Deep Learning
- Computer Vision
- Flask
- PostgreSQL
- Generative AI
- REST APIs
- OpenCV
- Artificial Intelligence

Project Link: <https://raitha-mitra-85ej.onrender.com/>

- Developed AI Raitha Mitra, an AI-powered agricultural intelligence platform leveraging Machine Learning, Computer Vision, and Generative AI to assist farmers with crop disease detection, yield prediction, and precision farming.
- Engineered deep learning models using TensorFlow and Computer Vision for real-time plant disease identification and intelligent crop health analysis.

- Integrated Gemini AI to provide multilingual conversational assistance, personalized farming recommendations, and AI-driven agricultural advisory services.
- Architected scalable backend services using Flask, PostgreSQL, and REST APIs to manage agricultural datasets, prediction workflows, and user interactions.
- Built machine learning-based crop yield prediction and decision-support systems, enabling data-driven agricultural planning and sustainable farming practices.

ACHIEVEMENTS

- Qualified for the State-Level OpenAI Academy × NxtWave Buildathon 2025
- Successfully completed a Generative AI Internship at Broadrange.AI under the RV University International Collaboration Program
- Achieved Elite Certification (87%) in Affective Computing through NPTEL (IIT Madras & IIIT Delhi)
- Organized and managed the MLX Machine Learning Hackathon at RV University.

ASSESSMENTS / CERTIFICATIONS

Programming in Modern C++

Provider: NPTEL (SWAYAM) – Indian Institute of Technology (IIT) Kharagpur

Aggregate: 54 / 100

Subjects: Programming in Modern C++ (54 / 100)

Key Skills: modern C++ OOPs STL Algorithms Polymorphism Generic Programming

• Completed the 12-week NPTEL certification in Programming in Modern C++ (IIT Kharagpur), gaining expertise in OOP, STL, templates, memory management, smart pointers, lambda expressions, and modern software development practices.

Design & Implementation of Human-Computer Interfaces

Provider: NPTEL (SWAYAM) – Indian Institute of Technology (IIT) Guwahati

Aggregate: 67 / 100

Subjects: Design & Implementation of Human-Computer Interfaces (67 / 100)

Key Skills: Human-Computer Interaction(HCI) User Interface(UI) Design User Experience User-Centered Design

• Completed the 12-week NPTEL certification in Design & Implementation of Human-Computer Interfaces (IIT Guwahati), gaining expertise in HCI, UI/UX design, usability engineering, interaction design, prototyping, accessibility, and user-centered design principles.

Affective Computing

Provider: NPTEL (SWAYAM) – IIT Madras & Indraprastha Institute of Information Technology (IIIT) Delhi

Aggregate: 87 / 100

Subjects: Affective Computing (87 / 100)

Key Skills:

Affective Computing Artificial Intelligence Emotion Recognition Computer Vision Pattern Recognition
Sentiment Analysis Behavior Analysis Multimodal AI

• Completed the 12-week NPTEL Elite certification in Affective Computing (IIT Madras & IIIT Delhi), achieving an Elite score of 87% and gaining expertise in emotion recognition, Computer Vision, NLP, multimodal AI, Speech Processing, Human-Computer Interaction, and emotion-aware intelligent systems.

SEMINARS / TRAININGS / WORKSHOPS

Peer-Mentor Learning Series (PMLS) workshop – "Commit to Cloud: GitHub & Hosting Simplified" 03 Feb, 2025 - 03 Feb, 2025
Institute Name: RV University

Key Skills: Git Github Version Control Github Repositories Branch Management Merge Requests

• Completed the "Commit to Cloud: GitHub & Hosting Simplified" workshop conducted by RV University, gaining practical experience in Git, GitHub, version control, collaborative development, and cloud-based application deployment using GitHub Pages.

CO-CURRICULAR ACTIVITIES

- Participated in the OpenAI Academy × NxtWave Regional Buildathon
- Organized the MLX Machine Learning Hackathon as Organizer and Manager
- Participated in AI, software development, and technical workshops organized by RV University

EXTRA CURRICULAR ACTIVITIES

- Active participant in hackathons, technical competitions, and innovation challenges.
- Regular contributor to AI-based software development and collaborative engineering projects.
- Engaged in self-learning through online certifications, workshops, and research-oriented project development.

PERSONAL INTERESTS / HOBBIES

- o Artificial Intelligence Research
- o Building AI Products

WEB LINKS

- o Github - <https://github.com/ajaykumartn>
- o Personal - <https://ajaytn.onrender.com/>

PERSONAL DETAILS

Gender: Male

Marital Status: Single

Current Address: Subhash Nagar Sandur,Ballari, Ballari,
Karnataka, India - 583119

Emails: ajaytn.btech23@rvu.edu.in , tnajaykumar563@gmail.com

Date of Birth: 03 Sep, 2004

Known Languages: KANNADA, ENGLISH, TELUGU,

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