

V MEENAKSHI IYER

vmeenakshi122002@gmail.com (+91) 9752955111 [LinkedIn](#) [Portfolio](#) [GitHub](#)

Aspiring technologist with a passion for Human-Computer Interaction, Artificial Intelligence, and designing ethical, inclusive solutions to tackle real-world challenges. Star Scholar at SAP Labs Bangalore and M.Tech student at BITS Pilani. Committed to advancing research and innovation that bridges technology and social impact.

Education

M.Tech. Software Engineering BITS Pilani	2025 – Present
Bachelor in Computer Application (BCA) Kristu Jayanti College, Bangalore University	2022 – 2025 GPA: 9.1/10
Senior School (12th, ISC) Mount Carmel School, Bhopal	Passed 2020 87.2% · Commerce & Computer

Skills & Technologies

Languages: Python, JavaScript, TypeScript, Dart, C++, Java, HTML, CSS, SQL (MySQL, PostgreSQL), Bash

AI & ML: Large Language Models, Transformers, Neural Networks, Deep Learning, NLP, Computer Vision, RAG, Agentic AI, Multi-Agent Systems, Vector Databases, Embeddings, Fine-tuning, PyTorch, TensorFlow, XGBoost, LightGBM, Whisper ASR, XTTS v2, Prompt Engineering, Scikit-learn, Hugging Face, LangChain, Ollama, OpenAI API, Groq API, spaCy, Bayesian Optimization, Knowledge Graphs

Frameworks & Tools: React, Next.js, Node.js, Flask, FastAPI, Express.js, Spring Boot, Flutter, Native Android (Java & XML), Electron, Three.js (R3F), Prisma, Tailwind CSS, MongoDB, Redis, Docker, Kubernetes, AWS, GCP, GitHub Actions, Figma, Selenium, Jira

SAP & Enterprise: SAP BTP, CAP Java, SAP AI Core, HANA Cloud, UI5, Fiori, XSUAA OAuth2, Change Log Management, Versioning

Experience

Star Scholar — SAP Labs Aug 2025 – Present
Bangalore, India

Asset Performance Management

- Strengthened API quality by expanding Mocha test coverage from **5% to 100%** and improving validation logic
- Diagnosed and fixed functional issues including a Joule scenario bug; resolved accessibility compliance tickets
- Contributed to a **RAG-based Agentic AI POC** for Maintenance Plan workflows using predictive modeling, knowledge graphs, and BM25-based retrieval
- Implemented backend versioning and delivered the **Change Log feature** end-to-end across UI, validations, and backend

Stack: CAP Java · UI5 · Fiori · Python · SAP BTP · SAP AI Core

Software Engineer Intern — South Bay Area Research Institute May 2024 – Dec 2024
California, USA

- Collaborated with a global team on the SiNET project — designed UI/UX, developed frontend, and implemented backend functionalities
- Improved data processing by **+25%**, user adoption by **+30%**, and reduced API latency by **-15%**

Stack: Linux · Flask · React · REST APIs · PostgreSQL

IT Project Management Intern — IIT Bombay July 2023 – Sep 2024
Remote

- Collaborated with Prof. Dr. Ganesh Ramakrishnan's CS dept on the Open Character Recognition (OCR) Project
- Handled project management, documentation, presentations, development, and testing to enhance OCR accuracy

Research Intern — Nestlé India Oct 2023 – Dec 2023
Remote

- Researched and identified AI-driven automation tools for Accounts Receivable (AR) within SAP technology
- Analyzed capabilities to enhance efficiency by **20%**; delivered structured findings within the designated timeline

Stack: SAP Technology · AI Automation · Data Analysis

Key Projects

EAHOP — Enterprise Agent Harness Optimization Platform

Live

- Production-deployed platform on SAP BTP — 6 novel engines (UAR, Agent Genome, Digital Twin, OKG, OME, AOS) autonomously optimize AI agents across 22 metrics and deliver the winning variant as a GitHub PR
- **+17.6% accuracy, -11.6% API cost** across 5 production agents; Digital Twin eliminated 30% of candidates; 86 tests; 6 patent-pending contributions
- Stack: Python 3.12 · FastAPI · React 18 · Claude 3.7 Sonnet (SAP AI Core) · SAP HANA Cloud · XSUAA OAuth2

CogDriftFormer — Cognitive Safety Transformer

- Novel multimodal transformer detecting cognitive overload, emotional drift, and manipulation exposure using DriftAware Positional Encoding and Cross-Modal Dual Attention (CMDA)
- 520 real + 3000 synthetic sessions · **OL-QWK: 0.882** · **MA-F1: 0.750** · **MA-AUROC: 1.000** · 21.77M trainable parameters
- Stack: PyTorch · Transformers · Neural Networks · Deep Learning · custom attention mechanisms

SYNC — Anticipatory Academic Resilience Companion

- 3D avatar AI companion for first-gen students — proactively tracks emotional trajectory and intervenes before burnout, unlike reactive AI tutors
- 10 novel research mechanisms: (1) AEM (2) TEFF (3) MBDS (4) ENC-ARC (5) PantoMatrix (6) EEC (7) ISPDE (8) CCSSD (9) GMDP (10) SCAE
- Stack: React + Three.js (R3F) + ReadyPlayerMe · Ollama Qwen2.5:7b · XTTS v2 · Whisper · PantoMatrix motion engine

Skylark Men's Wear

Live

- Full-stack ERP for a tailoring boutique — 6-stage order lifecycle (PENDING→DELIVERED), role-based portals (Owner/Worker/Customer), dynamic measurements, WhatsApp automation, loyalty points, PDF invoicing, PWA
- Stack: Next.js 16 · Prisma 7 · Neon PostgreSQL · Tailwind CSS · shadcn/ui · Baileys · custom JWT auth

i-ScOper AI — SAP Regression Test Optimizer

- ML ensemble (Random Forest, XGBoost, LightGBM) with Bayesian scoring and rolling 4-fold cross-validation to risk-rank SAP regression test cases
- Full EDA pipeline: data profiling, correlation analysis, outlier detection; reduces unnecessary testing and accelerates release velocity
- Stack: Python · XGBoost · LightGBM · Scikit-learn · Bayesian Optimization · SAP BTP

AIOS — AI Operating System

- macOS desktop assistant: voice/text commands → spaCy intent engine (15+ categories) → OS-level actions (apps, browser, files, terminal)
- RAG self-learning module (ChromaDB) + Ollama Phi-3 Mini LLM fallback; 100% on-device, no cloud data exposure
- Stack: Python · Flask · spaCy · Ollama · Electron · React · ChromaDB

EarthWise

GitHub *NASA Space Apps 2024 — Galactic Impact Award*

- AI tutor teaching all 17 UN SDGs through immersive lessons with lifelike neural TTS, real-time lip sync, and multilingual support (30+ languages)
- Stack: Next.js · OpenAI GPT-3 · ElevenLabs · Rhubarb Lip Sync · Google Translate API · Python/Express

AI Emotional Intelligence Assistant

- Real-time human-like virtual assistant: multilingual speech-to-speech pipeline (ASR → LLM emotional reasoning → neural TTS) with synchronized lip-sync and avatar animations
- Scalable, production-ready architecture enabling emotionally aware human-AI interaction

Lecture-STT — Speech-to-Text + File Q&A Assistant

Live

- Full-stack academic tool: transcribes lecture audio, extracts text from PDFs/images, and enables AI-powered Q&A over the content
- Stack: Next.js · Node.js · Express · MongoDB Atlas · Whisper · Tesseract.js · pdfjs-dist · Groq API (LLaMA 3.3) · Multer

SiNET — IoT Data Governance Platform

GitHub

- Secure IoT/RFID compliance platform for SBARI, Gilroy, California — real-time tracking of reusable cups across circular economy operations
- Improved data processing **+25%**, user adoption **+30%**, API latency **-15%**
- Stack: Linux · Flask · React · REST APIs · PostgreSQL

ConvoBuddy — Conversational AI Research Study

[GitHub](#)

- Deployed three Telegram chatbots (DialoGPT, GPT-2, LLaMA) to empirically compare response quality, coherence, and user perception across real users
- Structured analysis of engagement patterns and model performance; findings inform LLM selection for conversational AI products
- Stack: Python · DialoGPT · GPT-2 · LLaMA · Telegram Bot API

AutoQuestionGen — Intelligent Question Paper Generator

[GitHub](#)

- UiPath RPA workflow accepting curriculum inputs and autonomously generating customized academic assessment papers
- Reduced manual paper preparation time by **40%**; eliminated formatting errors; balanced difficulty distribution
- Stack: UiPath RPA · AI-assisted content selection · XML

Timetable Automation

[GitHub](#)

- Python web app solving academic timetable scheduling as a constraint satisfaction problem across classes, instructors, and rooms
- RESTful API for generation + React frontend for visualization and export; saves 40+ admin hours per academic cycle
- Stack: Python · Flask · React · PostgreSQL · Constraint Satisfaction

Attendance Application

[GitHub](#)

- Native Android app replacing manual roll calls with tap-to-mark attendance; improved tracking accuracy by **40%**
- Real-time Firebase sync, CSV report generation; clean Material Design UI for faculty and administrators
- Stack: Android SDK · Java · Firebase Realtime Database · Firebase Auth · Material Design

Assist — AI-Powered Multilingual Voice Assistant

- Python voice assistant executing tasks via natural language commands; dual TTS (gTTS online + pyttsx3 offline) for full functionality without internet
- Supports multiple languages for inclusive voice-driven human-computer interaction across Windows, macOS, and Linux
- Stack: Python · SpeechRecognition · gTTS · pyttsx3 · OpenAI API · Kivy

Research Papers & Publications

Cryptography as a Part of E-Commerce Record Management System

- Investigates how cryptography secures e-commerce transactions by analyzing double-entry bookkeeping in digital commerce and identifying prevalent security threats including phishing, SQL injection, and man-in-the-middle attacks
- Provides an in-depth study of cryptographic techniques — symmetric and asymmetric encryption, digital signatures, and hashing — and establishes SHA-256 as the most secure hashing function for protecting transactional data and preventing breaches

ICCI202459: Comprehensive Analysis of Artificial Intelligence in Contemporary Society

- Presents a comparative study of current AI methodologies and their transformative applications across industries, with a focus on healthcare, education, and customer service
- Critically addresses ethical concerns including algorithmic bias, job displacement, and responsible AI development; proposes frameworks for AI systems that complement human capabilities rather than replace them
- Highlights AI's potential to revolutionize personalized learning and intelligent customer interaction while preserving the irreplaceable role of human motivation and experiential knowledge

Enhancing Student Engagement with SDGs through Gamification and Artificial Intelligence in the Learning Environment *(Co-authored)*

- Co-authored study exploring how AI-powered tools and gamification mechanics can significantly increase student engagement and motivation toward the 17 UN Sustainable Development Goals
- Demonstrates that gamified challenges, simulations, and AI-driven personalized learning pathways enhance conceptual understanding, promote active inquiry, and foster responsible global citizenship among learners
- Provides actionable pedagogical frameworks for integrating AI and gamification into formal classroom teaching at scale

Organizational & Leadership

- **XACTITUDE 2024:** Head of Design and Development Committee at Kristu Jayanti's national fest
- **UiPath Student Developer Champion:** Company Ambassador; official social media team; spearheaded KJC Student Developer Community
- **Google Student Developer:** Facilitator for Android app development sessions; guided students in hands-on learning

Achievements

- **International NASA Space Apps Challenge 2024 — Galactic Impact Award** for EarthWise, an SDG-focused AI web app
- **Department Rank 2**, I.T. Dept, Kristu Jayanti College — GPA **9.1/10**
- Won **1st Prize** — Interface intercollegiate national fest, Christ University
- Selected for **LinkedIn Live** under EmpowerHER initiative (global)
- Contributor to **GirlScript Summer of Code (GSSoC) 2024**
- University Topper in Bharatnatyam — Kairagarh University
- Successfully cleared **CA Foundation** (Jan 2021) — 1st attempt
- Represented college in **Smart India Hackathon**

Extracurricular & Volunteer

- Volunteered for Isha Foundation's Isha Vidhya program — supporting rural education
- HR Intern at REWT Foundation — contributing to organizational management
- Volunteer for Unnat Bharat Abhiyan — aiding rural development projects
- Volunteer at Dhatri Patra Foundation — supporting social and environmental causes
- Served as Education Minister in school student council