

Dhruvadeep Malakar

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EDUCATION

Indian Institute of Technology Palakkad

Bachelor of Technology in Data Science

Palakkad, KL

Nov 2022 – Present

Maharishi Vidya Mandir

Science Stream (CS)

Guwahati, AS

Aug 2020 – Mar 2022

EXPERIENCE

Texas Instruments

May 2025 – Jul 2025

Software Developer Intern

Bangalore, India

- Worked under IT Solutions, a core Business Support Entity at TI.
- Developed scalable full-stack applications and data pipelines for internal and external use cases.
- Built and deployed an end-to-end Client Lifecycle Management system to automate hardware requests and renewals tailored to job profiles.
- Collaborated cross-functionally to deliver high reliability, role-based access control, and cost-efficient infrastructure management.

PROJECTS

Communicate (Zoom-like Collaboration Suite From Scratch)

Aug 2025 – Dec 2025

Java, .Net (C-Sharp), Azure Cosmos, Azure Devops, CI/CD

- Led end-to-end development of a large real-time collaboration system: chat, voice/video streaming, and multi-device communication built from low-level network calls upward.
- Served as Project Manager for a 30-member Java and .NET ecosystem, managing planning, execution, and cross-team integration while also contributing production code.
- Implemented cross-communication between JavaFX and WPF clients via a RPC pure OOP core with an async-first approach for non-blocking media and messaging pipelines.
- Built reliable CI/CD using Azure DevOps and integrated Azure services to support releases, automation, and operational stability.

Client Lifecycle Management

May 2025 – Jul 2025

OracleDB, Python, Next.js, FastAPI, Cron

- Automated employee laptop lifecycle based on job roles, enabling AI engineers to request GPUs and reducing mismatched resource allocations.
- Designed a full-stack system with administrative portals for managing manufacturers, devices, and persona-based eligibility.
- Built notification and email reminder workflows using cron jobs to streamline asset renewal without human intervention.

College Life (AI-Powered Campus Super App)

Aug 2025 – Nov 2025

React Native, TypeScript, FastAPI, PostgreSQL, RAG, Multi-Agent AI

- Co-built a cross-platform mobile app to unify academics, social features, campus marketplace, study-buddy matching, and wellness tracking into a single student-centric platform.
- Integrated AI features including multi-agent routing and RAG-backed Q&A for campus-specific assistance, plus automation-oriented workflows for common student tasks.
- Designed scalable backend APIs with authentication, structured data models, and performance-oriented storage to support real usage.

Viśva Mitra – One Assistant. Infinite Possibilities.

Jan 2025 – Jul 2025

Agentic AI, MCP, Voice Control, Docker, CI/CD

- Unified VoicePilot, ViZearch, and MCP into one agentic assistant that can control computers using voice and commands, bridging protocols to real product workflows.
- Built MCP client-server infrastructure and a centralized registry for publishing, discovering, and moderating MCP tools with lifecycle management.
- Reverse engineered the MCP protocol to manage service lifecycles, deployments, and remote control of servers; shipped containerized pipelines for consistent environments.

POSITIONS OF RESPONSIBILITY

YACC Head President <i>IIT Palakkad</i>	Mar 2023 – Present <i>Palakkad, KL</i>
Project Manager (Communicate) <i>Cross-platform JavaFX & .NET WPF ecosystem</i>	Aug 2025 – Dec 2025 <i>IIT Palakkad</i>

PUBLICATIONS / POSTERS

WMT2025 Poster Acceptance <i>Low-Resource MT, LoRA Fine-tuning, IndicTrans2, NLLB, Data Augmentation</i>	<i>Sep 2025</i>
<ul style="list-style-type: none">DoDS-IITPKD: Submissions to the WMT25 Low-Resource Indic Language Translation TaskAccepted as a poster at WMT2025 (EMNLP 2025 workshops); submission #122.Worked on low-resource MT for Khasi, Mizo, Assamese, and Bodo using fine-tuned multilingual models with LoRA and augmentation with external corpora.	

State Conference Poster Presentation: Principled Conditioning in Diffusion Models <i>Diffusion Models, Classifier-Free Guidance (CFG), Energy-Based Guidance, Bayesian Conditioning</i>	<i>Nov 2025</i>
<ul style="list-style-type: none">Presented a poster on principled conditioning for diffusion models, covering posteriors, classifier-free guidance, and energy-based (Boltzmann) guidance for controllable generation.Explained the quality–diversity trade-off under varying guidance strength and compared guidance strategies for stronger conditional adherence than standard conditioning baselines.Discussed generalized control mechanisms to steer sampling trajectories and motivate more controllable alternatives to prompt-only text-to-image pipelines (e.g., Stable Diffusion-style workflows).	

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, C, Go, SQL (Postgres, MySQL, SQLite), Scala
Frameworks / Libraries: React, React Native, Node.js, FastAPI, TailwindCSS, Scikit-learn, TensorFlow, PyTorch
Big Data: Apache Spark, Apache Hadoop, Apache Hive, Apache Kafka
Cloud / DevOps: AWS, Azure, Oracle Cloud, DigitalOcean, Azure DevOps, GitHub Actions, Docker, Git, Nginx
Databases: PostgreSQL, MySQL, MongoDB, Redis, PocketBase, Firebase
Developer Tools: VS Code, GitHub, Adobe Photoshop, Figma, CUDA
ML/DL Tooling: NumPy, Pandas, Matplotlib, MLflow, Jupyter