

Sandhya Elizabeth Anto

DATA SCIENTIST | AI ENGINEER

sandhyaelizabeth23@gmail.com | +971 501461277 | [Portfolio](#) | [LinkedIn Profile](#)

SUMMARY

Data Scientist and AI Engineer with experience across machine learning, computer vision, data analytics, cloud-based AI applications and AI product development. Experienced in developing data-driven solutions, building AI prototypes and deploying cloud-based applications using AWS, with hands-on software engineering practices including Docker and Git-based CI/CD. Strong experience with Python, C++, MATLAB, AWS Lambda, API development, OpenCV, Eigen and Ceres Solver.

EDUCATION

M.Sc. Information & Communications Engineering Technical Universität Darmstadt	2021 – 2026
--	--------------------

B.Tech. Electronics & Communications Engineering Vellore Institute of Technology	2016 – 2020
--	--------------------

KEY SKILLS

- **Programming:** Python, C++, MATLAB
- **AI & Machine Learning:** Machine Learning, Computer Vision, Stereo Depth Estimation, Feature Detection & Matching, Camera Pose Estimation, 3D Reconstruction, Data Analysis, Model Evaluation
- **AI Engineering:** AI Application Development, Cloud-based AI Solutions, API Development, AWS Lambda, AI Prototyping
- **Cloud & Software Engineering:** AWS, Docker, Git, Git-based CI/CD, GitHub, Mercurial
- **Computer Vision:** OpenCV, Eigen, Ceres Solver, 2D-to-3D Feature Lifting, Rigid Registration, Geometric Optimisation
- **Analytics & Visualisation:** Power BI, Tableau, Data Visualisation
- **Product & Delivery:** Agile, Scrum, Kanban, Requirements Analysis, Stakeholder Collaboration, MVP Development
- **Tools:** Jira, Confluence

WORK EXPERIENCE

Student Research Assistant

Darmstadt, Germany | April 2024 – September 2026



- Developing a depth-guided camera pose estimation framework for image-based 3D reconstruction, integrating stereo depth estimation with feature-based computer vision.
- Designing and evaluating computer vision algorithms to improve the robustness and accuracy of camera pose estimation.
- Implementing and evaluating algorithms in C++ using OpenCV, Eigen and Ceres Solver..

Product Developer

Darmstadt, Germany | May 2023 – March 2024



- Developed an AI-powered recruitment chatbot from concept to prototype, applying AI technologies to automate recruitment interactions and improve user experience.
- Developed cloud-based application components using AWS Lambda and API-based services.
- Used Docker to support consistent application development and deployment environments.
- Applied Git-based version control and CI/CD workflows to support iterative software development and delivery.

Data Scientist

Bonn, Germany | March 2022 – February 2023



- Developed data-driven solutions to analyse and optimise energy consumption within mobile telecommunications networks.
- Performed quantitative data analysis and research to identify patterns, optimisation opportunities and sustainability improvements.
- Analysed operational data to support data-driven decision-making within telecommunications use cases.
- Translated analytical findings into actionable insights for sustainability and network optimisation initiatives.

PUBLICATIONS

Automated Security Systems

IAEME Publication, April 2020

This project explores automation and security solutions, focusing on door control, gas leakage detection, and temperature monitoring, all managed through mobile integration for real-time control and safety.

[Preview Paper](#)

Ultrasonic Blind Aid Stick for the Visually Impaired and Physically Disabled

IJSR Publication, March 2019

This project focuses on developing an improved walking aid to provide greater convenience and independence for the visually impaired, offering a smarter, more accessible way to navigate their environment.

[Preview Paper](#)

ACHIEVEMENTS

Tribox Innovation Practitioner

Deutsche Telekom AG & RWTH Aachen University



- Innovation program focused on **Design Thinking, Lean Startup, and developing user-centric solutions** from problem identification to prototyping and business model development.
- **Selected for the Blue Tribox**, an advanced phase providing funding and mentorship to further validate and develop promising innovations toward market readiness.

Femtec Scholarship

Femtec GmbH



- Selective career and innovation program for **women in STEM**, focused on leadership, professional development, and industry-driven problem-solving.
- Completed a **four-month innovation project with Daimler Truck** on decentralized energy supply and eMobility, evaluating charging infrastructure, routes, financial incentives, total cost of ownership, and operational systems.

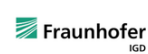
RESEARCH PROJECTS

AI-Powered Recruitment Chatbot



- Designed and developed an **AI-powered conversational recruitment system**, taking the project from initial concept and requirements analysis to a functional MVP prototype for candidate pre-screening.
- Investigated an end-to-end recruitment workflow integrating **conversational AI, AWS Lambda, and APIs**, supported by Docker and Git-based CI/CD practices.
- Collaborated with stakeholders to identify recruitment challenges, define technical requirements, and iteratively validate and refine the solution based on user needs.

Deep Stereo Matching for Feature-Based Camera Pose Estimation



- **Master's thesis focused on depth-guided camera pose estimation**, investigating whether learned stereo depth can improve the robustness and accuracy of feature-based pose estimation.
- Developed a computer vision framework integrating **feature matching, 2D-to-3D lifting, rigid registration, and geometric optimization** using C++, OpenCV, Eigen, and Ceres Solver.
- Evaluated **FoundationStereo, MonSter++, and WAFT-Stereo**, analyzing how stereo depth quality and noise affect downstream position and rotation estimation.
- Designed controlled experiments comparing **Classical and Depth-guided pose estimation**, including pairwise accuracy, global pose consistency, and failure-case analysis.