

Sai Ganesh CS

Final Year Undergraduate Student,
Department of Electrical & Electronics Engineering,
Sri Sai Ram Engineering College, Anna University.
Project Student – National Institute of Ocean Technology

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Education

- 1. Bachelor of Engineering (2019-23)**
- Electrical and Electronics Engineering, Sri Sai Ram Engineering College, Anna University, 9.041 GPA | [Link](#)
- 2. Diploma (2018)**
- C++ & SQL, CSC Computer Education Pvt Ltd, A+ | [Link](#)
- 3. IBM Qiskit Global Summer School (2021)**
- Quantum Machine Learning | [Link](#)

Work Experience

- 1. Visiting Researcher (Mitacs GRI) – University of Manitoba (05/2022-08/2022, Winnipeg, CA | [Link](#))**
Project: Generative Deep Learning for Electromagnetic Imaging.
Role: Developing optimization algorithms, generative models, and integrating modules.
Research: Image Reconstruction, Image Inversion, Optimization Algorithms, and Microwave Imaging.
Supervisor: Prof. Ian Jeffrey.
- 2. Project Trainee (AUV) – National Institute of Ocean Technology (01/2022-05/2022, Chennai, IN | [Link](#))**
Project: ML Based Localization and Guidance System for AUVs.
Role: Developing CV algorithm for near-field guidance, EM Wave Based ML algorithm for far-field guidance.
Research: Object Tracking & Detection, AUV Homing Guidance, Edge Computing and Embedded Systems.
Supervisor: Vedachalam N (Sr. Scientist, NIOT).
- 3. R&D Intern – Vecmocon Technologies (05/2021-12/2021, Chennai, IN (Partial Remote) | [Link](#))**
Project: Intelligent Battery Management System with Edge Computing for Electric Vehicles.
Role: Developing Predictive Models for BMS, Vehicle Dashboard & Internet of Things Platform.
Research: Machine Learning, Ensemble Techniques, and Internet of Things
Supervisor: Adarsh Kumar (COO, Vecmocon Technologies)
- 4. Project Trainee (SDE) – National Institute of Ocean Technology (12/2020-06/2021, Chennai, IN (Partial Remote) | [Link](#))**
Project: Underwater Acoustic Propagation Modelling.
Role: Developing Propagation Models, Machine Learning algorithms for Improving Model Selections.
Research: Underwater Acoustics, Propagation Modelling, Machine Learning Algorithms.
Supervisor: Bala Naga Jyothi (Scientist, NIOT)
- 5. Machine Learning Internship – IETE (09/2020, Remote | [Link](#))**
Projects: Supervised ML & Computer Vision Based Web Applications.
Role: Developing ML & CV models, Webpages, and Databases.
Tools: TensorFlow, Scikit Learn, HTML, CSS, JavaScript, Flask, and Django.
- 6. Engineering Assistant (AI) – ZRAE Global (01/2020-07/2020, Chennai, IN | [Link](#))**
Projects: ML Based Resources Planner for Solar and Thermal Plants.
Role: Research in plant data, choosing optimal algorithms, Developing ML models and web apps.
Tools: TensorFlow, Scikit Learn, HTML, CSS, JavaScript, Flask, and Django.
Supervisor: Kishore Abishek M (Director, ZRAE Global)
- 7. R&D Intern – Siechem Technologies Pvt. Ltd (04/2019-07/2019, Chennai, IN)**
Projects: Software for Electrical/Aerospace Cable Modelling & Long-Range RFID Recognition System for Industry.
Role: Software Development, Hardware Setup, and testing.
Tools: MATLAB, Java, and SQL.
Supervisor: Rengaraj R (Professor, SSN College of Engineering), Dhivakar V (R&D Manager, Siechem Technologies)
- 8. Co-Founder – Genik Technologies (04/2021-Present, Chennai, IN | [Link](#))**
Deployed 15 Industrial Intelligent Systems and Predictive Solutions. Revenue Generated: 25,00,000 INR.
Trained 600+ students in Machine Learning, Machine Vision and Robotics.
Products Developed: Endorser – Smart Digital Certifier, Neulab - Engineering Simulator, Rearticle – an interactive LaTeX.

Publications

- 1. Machine Learning Based Classification and Modelling of Underwater Acoustic Communication** (*OCEANS* | [Link](#))
Authors: Sai Ganesh CS, Bala Naga Jyothi V, Aouthithiye Barathwaj SR Y, Azhagumurugan R
Keywords: *Underwater Acoustics, Bellhop, Kraken, Scooter, Rangeo Models, Machine Learning.*
- 2. IoT Based Coal Mine Safety and Health Monitoring System using LoRaWAN** (*IEEE ICSPC* | [Link](#))
Authors: Porselvi T, Sai Ganesh CS.
Keywords: *Safety Engineering, Internet of Things, LoRaWAN.*
- 3. Review of Quantum Computing Methodologies and their Advancements** (*Submitted for Physics Letters A* | [Abstract Link](#))
Authors: Sai Ganesh CS, Aouthithiye Barathwaj, Swethaa S, Pavithiran G, Azhagumurugan R.
Keywords: *Quantum Entanglement, Quantum Communication, NMR, SPDC.*
- 4. Machine Learning Based HSV Space for YOLOv4 in Underwater Imaging** (*Revision Submitted for ESWA* | [Abstract Link](#))
Authors: Sai Ganesh CS, Aouthithiye Barathwaj SR Y, Azhagumurugan R, Swethaa S.
Keywords: *Underwater Color Spectrum, Computer Vision, Machine Learning, YOLOv4*
- 5. Improved Aerial Object Detection Algorithm Based on Weighted Luminance** (*ArXiv-Cornell University Press, Preprint Link*)
Authors: Sai Ganesh CS, Aouthithiye Barathwaj SR Y, Swethaa S, Azhagumurugan R.
Keywords: *Deep Learning, Computer Vision, Rayleigh and Mie Scattering, YOLOv4.*
- 6. Deep Learning Based Analysis of BLDC Motor Speed Control** (*IEEE GCAT* | [Link](#))
Authors: Porselvi T, Aouthithiye Barathwaj SR Y, Sai Ganesh CS, Tresa Sangeetha.
Keywords: *Machine Learning, ANN, BLDC Motors, Motor Controllers.*
- 7. PV System Based Induction Motor with Landsman Converter Using IFOC Controller** (*IEEE GCAT* | [Link](#))
Authors: Porselvi T, Krithika K, Sai Ganesh CS.
Keywords: *Power Electronics, Motor Controllers, PV Systems.*
- 8. Predictive Modelling for Healthy Marine Life and Ecosystem using Ensemble Techniques** (*OCEANS* | [Link](#))
Authors: Aouthithiye Barathwaj SR Y, Azhagumurugan R, Swethaa S, Haariharan N C, Sai Ganesh CS, Mahesh J.
Keywords: *Machine Learning, Marine-life ecosystem, Ocean Acidification, Climate Change.*
- 9. Hybrid Boost Converter for AC and DC Loads Using PV System Controller** (*Springer RAET Chapter* / [Link](#))
Authors: Porselvi T, Preethi K, Aouthithiye Barathwaj SR Y, Sai Ganesh CS, Kothai R.
Keywords: *Fuzzy Control, PID Controller, PV Systems.*
- 10. Field Oriented Control and Speed Estimation of PMSM using Reinforcement Learning and NN.** (*Presented at IEEE ICPECTS'22*)
Authors: Ragavendran R, Sai Ganesh CS, Manoj Kumar, Solana Appalo A M | (*Online by March 2023*)
Keywords: *Battery Management System, PMSM Motors, BLDC Motors, Machine Learning.*
- 11. Low Frequency Underwater Acoustic Modelling Based on Deep Learning** (*Presented at IEEE ESTCON - Malaysia*)
Authors: Azhagumurugan R, Porkumaran K, Sai Ganesh CS, Aouthithiye Barathwaj SR Y | (*Online by March 2023*)
Keywords: *Underwater acoustics, Supervised Machine Learning, Predictive Modelling.*
- 13. Smart Earthquake Detector and Rescuing System for Differently Abled Person** (*Presented at IEEE ICPECTS'22*)
Authors: Jeeva C, Porkumaran K, C S Boopathi, Sai Ganesh CS, Krithika B | (*Online by March 2023*)
Role: *GDTAB Waves, GSM, EEG.*
- 14. Congestion Management in Deregulated Power Systems using Genetic Algorithm** (*IEEE ICPECTS'19* | [Link](#))
Authors: Sharmila P, Baskaran J, Nayanatara C, Sai Ganesh CS, Haariharan N C.
Keywords: *Genetic Algorithm, FACTS, Power System Optimization.*
- 15. Scheming Electrical Wheel Chair Using Sensing Brain GDTAB Waves** (*IEEE ICPECTS'19* | [Link](#))
Authors: Suresh Kumar, Shanmugapriya P, Naveen Kumar, Aouthithiye Barathwaj SR Y, Sai Ganesh CS.
Role: *GDTAB Waves, ZigBee, EEG.*
- 16. Optimization of Renewable Energy Parameters for Maximizing Power Output** (*IEEE ICPECTS* | [Link](#))
Authors: Nayanatara C, Sharmila P, Shanmugapriya P, Janani T, Sai Ganesh CS.
Keywords: *Power System Optimization, IEEE Standards, Renewable Energy.*

Citations: 24 | [Google Scholar Link](#)

Specializations & Skills

- 1. Machine Learning** (*TensorFlow, Keras, Sci-kit Learn, Pytorch, Numpy, Pandas & Essential Plotting tools.*)
- 2. Quantum Computing** (*Qiskit, Cirq, Rigetti & TensorFlow Quantum*)
- 3. Cloud Computing** (*GCP, Heroku, & Firebase*)
- 4. Programming** (*Python, Java, Javascript, C/C++, HTML, CSS, SQL, MATLAB & LaTeX*)
- 6. Embedded Systems** (*Raspberry Pi, Jetson Nano, NodeMCU & TI-MSP, 8051, 8081*)
- 7. Edge Computing** (*ThingSpeak, Adafruit, LoRaWAN, XBEE & ZigBee*)
- 8. System Administration** (*Linux Administration, Bash, csh, Office Tools, Workspace Management*)

Certifications

1. **QTM3x: Architecture, Algorithms, and Protocols of a Quantum Computer** (Delft University-edX | [Link](#))
2. **Diploma: Quantum Computing & Programming** (QWorld | [Link](#))
3. **Professional TensorFlow Developer** (deeplearning.ai | 4 Courses | [Link](#))
4. **Deep Learning Specialization** (deeplearning.ai | 5 Courses | [Link](#))
5. **TensorFlow: Data & Deployment** (deeplearning.ai | 4 Courses | [Link](#))
6. **AI in Medicine** (deeplearning.ai | 3 Courses | [Link](#))
7. **Quantum Mechanics** (Coursera-University of Colorado Boulder | [Link](#))

Patents

1. **RFID Based Multi-purpose Grid and Tracking System for Agricultural Field Robots**
(Final Revision Submitted | 202141016513 | Inventors: Sai Ganesh CS, Aouthithiye Barathwaj, Azhagumurugan)
2. **Processed Bamboo Based Irrigation System with Surveillance Platform for Field Robots**
(Published | 202141012727 | Inventors: Azhagumurugan, Sai Ganesh CS, Aouthithiye Barathwaj)
3. **Intelligent waste classifying for Eco-friendly Bio Composting**
(Published | 202141030061 | Inventors: Aouthithiye Barathwaj, S Bahera, Vasundhara L, Saisudha G, Sai Ganesh CS)
4. **IoT Based Fishing and Security System for Watercraft Vessels.**
(Published | 202241018251 | Inventors: Haariharan N C, Aouthithiye Barathwaj SR Y, Azhagumurugan R, Swethaa S, Sai Ganesh CS)

Honors & Awards

1. **Mitacs GRI Award** (Issued by Mitacs, Research Manitoba & UManitoba | [Link](#))
2. **Leo Muthu Scholarship** (Issued by Sairam Institutions | [Link](#))
3. **Winner, OCEANS International Hackathon 2022** (Issued by IEEE OES, Marine Technology Society | [Link](#))
4. **Winner, Agri-Food Hackathon 2021** (Issued by IIT Kharagpur, ABIF | [Link](#))
5. **IEI Best Student Award** (Issued by Institute of Engineers (IEI), India | [Link](#))
6. **NASSCOM AI Scholarship** (Issued by NASSCOM | [Link](#))
7. **TNSI 2020 Finalist** (Issued by Govt. of TN | [Link](#))
8. **Technical Chair** (IEEE ICPECTS 2022 | [Link](#))
9. **Student General Chair** (IEEE ICPECTS 2020 | [Link](#))

Declaration:

I hereby declare that the above particulars of facts and information stated are correct to the best of my belief and knowledge.

Place: Chennai

Date: 12.01.2023

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