

SANKAR BALASUBRAMANIAN

Computational Design — LLM & Agentic AI systems — Human-AI Collaboration — Extended Reality — Affective Computing

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Publications: [Google Scholar](https://scholar.google.com/citations?user=sankarb)
Portfolio: <https://www.sankar.studio>
PhD Novel: <https://www.sankar-phd.in>
Research Gate: [RG-Sankar](https://www.researchgate.net/profile/Sankar-Balasubramanian)
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Present Address:
Research Scientist,
RISE Lab,
Centre for Biomedical Engineering,
Indian Institute of Technology (IIT), Delhi,
Hauz Khas, New Delhi,
India. Pin: 110016

Professional Vision

A passionate Computational Design Researcher specializing in AI, XR, and Human-Computer Interaction, focused on enhancing engineering design to enable immersive, intuitive, and perceptive human experiences. My interests lie in designing intelligent systems and building architectures for AI that foster meaningful human-machine collaboration, with the goal of shaping a more sustainable and thoughtful future for all. I envision a future where machines can think, communicate, and feel like humans do.

Academic Information

Ph.D. in Computational Design (CGPA: 8.30/10) (2020-2026)

- Applied Geometry & Mechanisms Lab (AGML), Mechanical Engineering, Indian Institute of Science (IISc), Bangalore.
- *Title of Thesis:* An Active Ideation Framework using Creative Machines for Synergistic Human-AI Collaboration.
- *Supervisor:* Prof. Dibakar Sen

M.E. in Engineering Design (CGPA: 9.34/10) (2015-2017)

- Department of Mechanical Engineering, Government College of Engineering (GCE), Tirunelveli.
- *Title of Thesis:* Experimental Study on the Mechanical Behaviour of *Prosopis juliflora* Fibres as a Potential Reinforcement for Fibreglass Boat Hull
- *Supervisor:* Prof. Selwin Rajadurai

M.B.A. in Professional Management (*Part Time*) (2015-2017)

- Department of Management Studies, M.S. University, Tirunelveli.

B.E. in Mechanical Engineering (CGPA: 8.91/10) (2010-2014)

- Department of Mechanical Engineering, Government College of Engineering (GCE), Tirunelveli.
- *Title of Project:* CFD Analysis to Understand the Performance Enhancement of a Newly Designed Helical Coil Heat Exchanger in the Tuticorin Thermal Powerplant
- *Supervisor:* Prof. Selwin Rajadurai

HSC (94.33%) & SSLC (93.80%) (2008-2010)

- A.V.Rm.V. Matriculation Higher Secondary School, Tirunelveli.
- *Stream:* Mathematics, Physics, Chemistry, and Biology

Work Experience

Research Scientist — RISE Lab, Centre for Biomedical Engineering (CBME), IIT Delhi (May 2026 - Present)

- Developing a VR-based experimental platform to induce graded stress–calmness states using randomized scenario ordering, adaptive stimulus design, and operational "ground truth" definition for affective computing states.
- Integrating VR with wearable IMU sensing to quantify minute hand tremors longitudinally and study modulation by external stressors and mood stimuli.
- Planning multimodal physiological measurements (e.g., HRV/EDA/ECG/EEG/GSR) to correlate autonomic markers with tremor dynamics; specifying sampling and LSL synchronization.
- Advanced Predictive Modelling: Built machine learning and deep learning classification/regression systems to model stress tremor dynamics, decode autonomic markers, and automate stress-state identification.
- Markerless Computer Vision: Building a custom computer vision system leveraging Eulerian Video Magnification (EVM) to execute markerless motion capture, extracting sub-visible tremor envelopes directly from video streams.

Principal Software Architect — Created (Oct 2025 - Jan 2026)

- Developed and designed an AI-based mentoring platform (LMS) similar to Moodle, focusing on scalable course delivery, mentoring workflows, and learner progress tracking.

Teaching Assistant (Jan 2024 - Apr 2024)

- *Institute:* Indian Institute of Science (IISc), Bangalore - 560012
- *Course:* ME200 - AI Assisted Programming

Teaching Assistant (Jan 2023 - Apr 2023)

- *Institute:* Indian Institute of Science (IISc), Bangalore - 560012
- *Course:* PD235 - Mechanism Design

Assistant Professor — Mechanical Engineering (Jul 2017 - Aug 2020)

- *Institute:* Thiagarajar College of Engineering, Madurai - 625015
- *Courses Taught:* Machine Design, Design Thinking, Product Design and Development, Lateral Thinking, Engineering Mechanics, Kinematics and Dynamics, Solid Mechanics, Finite Element Analysis

Doctoral Research Work

GENIE: Idea Generation Tool for Function Design with DesignerAI LLM :

- Sankar B et al. (2023), "Overcoming Ideation Bottlenecks using Conversational AI," *9th International Conference on Product Lifecycle Modelling, Simulation & Synthesis* – **Best Paper Award**
- Sankar B et al. (2024), "A Novel Idea Generation Tool using a Structured Conversational AI (CAI) System," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AIEDAM)*, Cambridge University Press. DOI: [10.1017/S089006042500006X](https://doi.org/10.1017/S089006042500006X)

MAGICS: Idea Assessment Framework using VE and Clustering :

- Sankar B et al. (2025), "Semantic characterization of ideation: a computational framework using vector embedding and clustering," *Journal of Engineering Design*, Volume 36, Issue 4, pp. 596–625, Taylor & Francis Group. DOI: [10.1080/09544828.2025.2537465](https://doi.org/10.1080/09544828.2025.2537465)

MIDAS: Agentic AI for Progressive Ideation with Global & Local Novelty Check :

- Sankar B et al. (2026), “Novelty on Demand via Progressive Ideation using an Agentic AI Framework,” *Design Studies*, Elsevier, Submitted Under Review. [arXiv DOI: 10.48550/arXiv.2601.00475](#)

DIMES: A Custom Git as a Version Management System for Concept Design &

AEGIS: Concept Sketch Stroke Dataset Recording and Classification System &

TRACES: Desktop Video Annotation Tool for Temporal Sketch Analysis :

- Sankar B et al. (2023), “A Novel Version Control Scheme for Supporting Interrupted Product Concept Sketching,” *9th International Conference on Research into Design*, Volume 3, Chapter 33. DOI: 10.1007/978-981-99-0428-0_33 – **Best Paper Award**
- Sankar B et al. (2026), “Git for Sketches: An Intelligent Tracking System for Capturing Design Evolution” *Engineering Applications of Artificial Intelligence*, Elsevier - Submitted. [arXiv DOI: 10.48550/arXiv.2602.06047](#)

EUPHORIA: Implicit Gaze-based Feature Selection Framework in VR &

RETINA: Agentic AI based Form Generation System from Implicit Features :

- Sankar B et al. (2025), “Designing with the Eyes: Implicit Attention-based Form Ideation in Virtual Reality,” *ACM Eye Tracking Research and Applications ETRA 2025*, pp. 1–4. DOI: 10.1145/3715669.3726819
- Sankar B et al. (2025), “An Agentic AI Framework for Form Design through Implicit Visual Attention,” *Journal of Engineering Design*, Taylor & Francis, Submitted, Under Review. [arXiv DOI:10.48550/arXiv.2508.19708](#)

FENSO: Agentic AI based Progressive Form Design for Complex Products :

- Sankar B et al. (2026), “Progressive Form Generation for Complex Products: A Human-in-the-Loop Multi-Agent Framework for Designer-Led Co-Creation,” *International Journal of Design Creativity and Innovation*, Taylor and Francis, Submitted Under Review.

Note: Blue indicates a website; Orange indicates a stand-alone desktop windows application.

Key Skills and Expertise

- **Programming & Development:** Unity (C#), OpenGL (C++), OpenCV (Python), Machine Learning (ML), Deep Learning (DL - Pytorch), Large Language Modelling (LLM - RNN, LSTM, GRU, Transformers), Reasoning & Prompting Techniques (System Prompts, CoT, ToT, ReAct, Few-Shot Learning), RAG & Vector DB, Agentic AI Architectures (MAS, Orchestration, HITL, Tool Use & Function Calling), LLM Orchestration (LangChain, LangGraph, LangSmith), MATLAB, HTML, CSS, JavaScript (ReactJS, NextJS), FastAPI, Docker, Github Actions (CI/CD pipeline), Tailwind CSS, MaterialUI
- **Design & Visualization:** SolidWorks, Fusion 360, Figma, Blender, 3D Printing (FDM, SLA)
- **Human-Computer Interaction:** XR (VR/AR/MR), Creative Engineering, UI/UX, Generative AI, Interface Design, Computational Product Design
- **Computation & Modelling:** Computer Graphics (OpenGL), Applied Geometry, CAD, Computer Vision (OpenCV)
- **Tools & Platforms:** Git, ShapesXR, MeshLab, Photoshop, Tableau, Concepts, Notion

- **Soft Skills:** Proactive Thinking, Attention to Detail, Team Leadership, Agile learning, High Standards, and Consistency
- **Communication Skills:** Clear Articulation, Public Speaking, Collaborative Mindset, Conflict Resolution

Doctoral Coursework

Computer Graphics and Scientific Visualization, Human-Computer Interaction, Data Structures and Algorithms, Computer-Aided Design (CAD), Creative Engineering Design (CED), Robotics, Algorithmic Art and Visualization, Dynamics and Control of Mechanical Systems, Introduction to Computing for AI and Machine Learning, Natural Language Processing, Pattern Recognition and Neural Network, Introduction to Scalable Systems, Engineering Mathematics

Design Portfolio

Software Design

Research-driven Apps

- **MERAGE (IWOZ-LLM-TSST):** Reactive multi-agent LLM mock-panel interview platform (TSST-OnAI) for stress induction and psychophysiological evaluation, with an IWoZ experimenter console, sequential turn-taking, event logs/LSL markers, post-session webcam emotion analysis (HSEmotion), and video-based heart-rate estimation using Eulerian Video Magnification.
- **The Personality Project:** Psychometric system that builds a 116-facet Atomic User Model of a person's personality to infer tacit, task-specific preferences at chat time.
- **Synapse Studio:** An open learning and synthetic-data platform for biosignals (ECG, EMG, EEG, EDA, PPG, SpO₂, Ultrasound) with interactive learning modules, 3D real-time simulators, and a Data Studio for generating/importing/analyzing datasets and streaming PLUX devices, including multimodal physiology.
- **HARICHAN:** Measure the AI trust threshold by systematically varying assistant reliability (0–100% false facts) across learning chats and surprise quizzes, tracking misinformation absorption, confidence, and checking behavior.
- **AURA:** Agentic AI based webapp that turns lo-fi sketches and a short questionnaire into hi-fi website designs and a deployable React codebase — with UX laws as first-class constraints
- **AADYA:** Agentic AI for designing your problems through abstraction. Curiosity-driven problem design tool with four AI agents and the AI3C framework for structuring the problem.
- **PAWNI:** Agentic system that transforms raw natural language into optimized, structured prompts using multi-agent orchestration and a self-evolving knowledge graph
- **PromptQueen:** Human-to-AI “whisperer” that guides users to think first, then converts typed/spoken intent into SAD prompts (Structured, Adept, Detailed) suitable for any LLM model.
- **CODINGS:** Contextual Ontology-Driven Document Intelligence and Narrative Generation System
- **FLAVOVR:** VR application for hyper-personalized product generation using gaze-based interaction and law-of-attraction-inspired, nature-driven artistic/poetic design cues.
- **FormForge-TEX:** Text-conditioned fine-tuned diffusion model for rapid product concept rendering

- **FormForge-IMG**: Image-conditioned fine-tuned diffusion model for guided product concept rendering
- **CREAM**: AI-powered platform for structured scientific communication with mentor review workflows and automatic manuscript assembly
- **SpaceUX**: Formalizing User Experience (UX) Design using a Conversational AI System
- **RAVEN VR**: VR + eye-tracking application to investigate the interplay of attention and memory in complex visual enumeration tasks
- **SenseiAI**: A Web application for evaluating and enhancing the sustainability of products during conceptual design stage
- **FAMOT**: An Open-Source VR Application for Target Achievement Control Evaluation of Upper Limb Motor Functions

Curiosity-driven Apps

- **PAPYRUS**: Venue-neutral paper authoring assistant that generates ready-to-compile LaTeX bundles for major publishers (ACL/ACM/IEEE/Elsevier/Springer/Wiley, etc.) with one-click switching and consistent `\citep`/`\citet` conventions.
- **DELULU-DL**: In-browser, drag-and-drop playground for designing neural networks layer-by-layer, with live tensor-shape and parameter-count updates—no setup, no code
- **Murmur AI**: voice-based fleeting thought capture with smart transcription, enrichment, and exports
- **XunZhine**: X-day Challenge and Unified Notification Zone for Habit Improvement and Efficiency
- **MELLINAM**: An AI filter for messaging apps that softens your words before they hurt.
- **OP(AI)UM**: AI-powered Windows file manager combining a smart explorer (recent/time-grouped views, preview, real-time search) with an AI chat assistant for safe file operations (organize, dedupe, undo)
- **LEZAA**: Chrome extension to save/organize/restore tab sessions into a nested library (folders/tags/notes) with approve-first AI grouping and on-device, no-telemetry storage.
- **VITALS**: Browser-first interactive ECG/EDA/EEG teaching & analysis pipeline (XDF/CSV) from calibration and filtering to HRV, EDA decomposition, EEG bands, figures, and reproducible exports.
- **ANAM[QR]PHIC**: Anamorphic voxel QR diorama studio that morphs a 3D printable scene into a scannable top-down QR view, exporting a single watertight solid (STL/OBJ).
- **HAYSU**: Cross-platform desktop wellness companion for hydration reminders, adaptive movement exercises, and Pomodoro focus cycles.
- **TesseractAI**: A GenAI-based Web App for chatting with a document using RAG
- **EEVEE**: AI-powered emotional support desktop companion with proactive, privacy-first stress detection and wellbeing interventions
- **Lang Port**: A flashcard-based Web App for learning conversation phrases in different languages
- **BLOODY MARY**: Password Quest Game with AI Gatekeeper Interrogation
- **GenZPT**: GenZ/GenAlpha slang translator with chat interface and translation history

- [AI Periodic Table](#): interactive framework organizing 150+ AI concepts by functional blocks and maturity
- [SCALE & AGML Lab Website](#): my lab website showcasing projects, people, and publications
- **Ghost Basketball**: A VR-based Basketball Simulation Game with a Ghostly Twist
- **ZenVR**: A VR-based Game for Anxiety Management, Best Performance, Best Innovation & Best Coding Awards at IEEE SSH 2024
- **HerbVRium**: A VR-based Simulation for Understanding Medicinal Plants in AYUSH
- **Ballet Sketch**: A VR-Based Application for Mid-Air Direct 3D Sketching
- **RoboSense**: A Matlab-based Application for Controlling a Virtual Robotic Serial Manipulator using Mobile Phone Sensors
- **ZephyAiR**: An AR-based Android App for Stress Management
- **LoadGenX**: An Application for Automatic Generation of CAD Models and Drawings of Standard Joints, Shafts, and Couplings based on external loading conditions
- **Mindsphere - VeaR-Space**: Immersive VR Experience for Emotional Well-being and Mental Resilience

Hardware Design

- *DANTUM*: Dental Arch Non-invasive Triage via Unified Multispectral imaging - A product for oral healthcare by Seeing every surface of every tooth, including between them, without X-rays
- *BA³ Band* (Blind Algorithmic Abstract Art Band): An IMU-based wearable band that lets users create 3D algorithmic art through natural hand motion; movements are mapped onto a digital canvas and used as guidance for AI-assisted abstract art generation
- *Dysto*: An Automated Device for Removal of 3D-Printed Parts from Build Platforms
- *Resistive Stretch Sensor (RSS) Band* for Naturalized Hand Interaction in Virtual Environments
- *GAITMATE*: A Portable Device for In-place Locomotion in Virtual Environments
- *OMG Glasses*: A glasses embedded with a camera for tracking the progression of early-stage Ocular Myasthenia Gravis
- *ToeFro*: A Device for interactive and gamified rehabilitation for Club-foot
- *AuraTouch*: An App for 3D Model transformation using IMU and Flex Sensor.
- *BubbleBlast*: An interactive system for coordinated forearm muscle training
- *Typing Signature*: A Novel Biometric-authentication system using piezoelectric sensors
- *3DTTT*: A 3-Dimensional Tic Tac Toe Game that never ends in a draw
- *REFLEX*: Interactive HCI system for Forearm Rehabilitation
- *An Upper Limb Exoskeleton for Stroke Patients*

Research Projects

- Sankar B, Deepthika S (2026), "Neophilic and Neophobic Design Preferences Across Generational Cohorts: Consumer Attraction to Conventional and Unconventional Product Aesthetics", *Journal of Business Research*, Elsevier, Submitted
- Sankar B et al. (2026), "Preference Without Assertion: Locating Aesthetic Agency in a Gaze-Driven Design System", *Creative AI 2026 (NeurIPS Creative AI Track: Agency)*, Accepted
- Sankar B et al. (2026), "KAAYA: The Body Draws What the Eye Never Sees", *Creative AI 2026 (NeurIPS Creative AI Track: Agency)*, Accepted
- Sankar B et al. (2026), "Creating an Atomic User Model for Personality-Aware LLM Interaction", *Personal and Ubiquitous Computing*, Springer, under Review [arXiv DOI:10.48550/arXiv.2609.12086](https://arxiv.org/abs/2609.12086)
- Sankar B et al. (2026), "Asking Questions the Right Way: A Multi-Agent Conversational System for Prompt Formulation — A Neurophysiological Pilot", *Information Processing and Management*, Elsevier, under Review [arXiv DOI:10.48550/arXiv.2608.01366](https://arxiv.org/abs/2608.01366)
- Sankar B et al. (2026), "A Collaborative Human-AI Framework for Ethical and Effective Scientific Communication", *Perspectives*, Springer, Submitted
- Sankar B et al. (2026), "A UX Law-Guided AI Platform for Generating High-Fidelity User Interfaces (UI) from Low-Fidelity Inputs", *Computer-Aided Design*, Elsevier, under Review
- Sankar B et al. (2027), "SenseiAI: An LLM-based Framework for Evaluating and Enhancing Sustainability during Early Stages of Product Design", *11th International Conference on Research into Design (ICoRD 2027)*, Accepted
- Sankar B et al. (2027), "Designing the Problem: A Curiosity-Driven Framework for Human-AI Collaboration in Problem Framing", *11th International Conference on Research into Design (ICoRD 2027)*, Accepted
- Sankar B et al. (2026), "GAITMATE: Dual-Mode In-Place Locomotion for Virtual Reality from Foot-Mounted Ranging, Optical Flow and Inertial Sensing", *IEEE UPCON 2026*, Submitted
- Saanvi Khetan & Sankar B (2026), "When the Facts Run Out - Measuring and Steering Identity Substitution in Large Language Model Investment Advice", *ICAIF '26 - 7th ACM International Conference on AI in Finance*, Accepted
- Sankar B et al. (2027), "Beyond the Salient: Recovering an Aesthetic Fingerprint from Immersive Gaze using Deep Saliency and Vision Language Models", *IEEE AIXR 2027*, Under Review
- S. Shree Darshni, Sankar B, Vishal Singh and Dibakar Sen (2026), "A Parametric Investigation of Proximity-Based Perceptual Grouping in Immersive Virtual Environments", *DCC 2026*, Accepted and Presented
- Sankar B et al. (2026), " D^2 Design: Dual-conditioned diffusion AI for accelerating product form generation", *Computer-Aided Design*, Elsevier, vol. 195, art. 104063. DOI: [10.1016/j.cad.2026.104063](https://doi.org/10.1016/j.cad.2026.104063)
- Spoorthy Kannur, Agrini Chaturvedi, Pallav Wakyos, Sankar B (2026), "A Novel Ear Space Reference (ESR) Model for Ergonomic Design of Earphones", *Ergonomics in Design*, Sage, DOI: [10.1177/10648046261447568](https://doi.org/10.1177/10648046261447568)
- Sankar B et al. (2025), "Enumeration of Objects over Large Visual Fields", *Behavior Research Methods*, Springer, Submitted [arXiv DOI:10.48550/arXiv.2510.05833](https://arxiv.org/abs/2510.05833)

- Manikandan Shenbagam, Sankar B, and Biswarup Mukherjee (2025), "FAMOT: An Open-Source Virtual Reality Application for Target Achievement Control Evaluation of Upper Limb Motor Functions", *International Society for Virtual Rehabilitation (ISVR) - RehabWeek 2025*, DOI:10.1007/978-3-032-17790-2_49
- Joe Thomas, Muzammil Bagewadi, Sankar B, Rajath S and Vishal Singh (2025), "Using design principles as a lens to interpret user needs: a case study using a new 3D tic-tac-toe game", *Proceedings of the Design Society*, Volume 5, Page No.3351-3359, Publisher: Cambridge University Press. DOI: 10.1017/pds.2025.10349
- Sankar B et al. (2025), "From h-Index to AIMS: A Multi-dimensional Model for Comprehensive Research Impact Assessment", *10th International Conference on Research into Design (iCoRD)*, In: Responsible and Resilient Design for Society, Vol. 12, Lecture Notes in Mechanical Engineering, Springer, pp. 53–69. DOI: 10.1007/978-981-96-5511-3_5
- Sankar B et al. (2024), "A Novel Automated Device for Removal of 3D Printed Parts from Build Platforms", *15th International Conference on Industrial Problems on Machines and Mechanisms (IPRoMM)*, DOI:10.1007/978-981-95-1872-2_22 – **Best Paper Award**
- Sankar B et al. (2024), "Design and Characterization of a Novel, Low-Cost Resistive Stretch Sensor Band for Interactions in HCI Applications", *15th International IEEE Conference on Computing, Communication and Networking Technologies (ICCCNT)*, DOI: 10.1109/ICCCNT61001.2024.10724103
- Dubbaka Siri, Sankar B (2023), "Ethical Decision Making for Social Robots in Elderly Care Scenario: A Computational Approach", *ICSR 2023, Lecture Notes in Computer Science*, Vol 14453, Springer Nature, Singapore, DOI: 10.1007/978-981-99-8715-3_13
- Sankar B, Mukil Saravanan, K Kumar, Siri Dubbaka (2023), "Transforming Pixels into a Masterpiece: AI-Powered Art Restoration using a Novel Distributed Denoising CNN (DDCNN)," *International Conference on Emerging Techniques in Computational Intelligence (ICETCI)*, Hyderabad, India, 2023, pp. 164-175, DOI: 10.1109/ICETCI58599.2023.10331299
- Sankar B et al. (2025), "OTGP: An Innovative Biometric Authentication System with On-The-Go-Passwords using a Novel Typing Signature", *Journal of Emerging Investigators*, DOI:10.59720/25-052

Datasets

- Sankar B (2023), "Renaissance, Modern and Abstract Art Images - Clear and Distorted", *Kaggle*, 10.34740/kaggle/dsv/6397427 [Link]
- Sankar B (2026), "Product Concept Sketches - Types of Strokes", *HuggingFace* [Link]
- Sankar B (2026), "Inspirational Form Elements Images", *Kaggle*, ./sankarmechengg/inspirational-form-images [Link]

Patents and Designs

- Utility - A Motorized Device for removal of the 3D printed part from 3D printers - 202441015992 - Granted
- Utility - Collapsible, Adaptable, Modular, and Portable Hangar System for Aircrafts - 202441093394
- Utility - A Protective Covering for Helicopters - 202341080816
- Utility - Biometric Authentication System using Novel Typing Signatures - 202521020306

- Utility - Interactive Recovery Equipment, Device, System and Method for Forearm Rehabilitation using a Gamified Approach - *202521026225*
- Design - Interactive Recovery Equipment and Rehabilitation Device - *455310-001*
- Design- Resistive Stretch Sensing (RSS) Band - Granted - *420267-001*
- Design- An Electric Vehicle with a Single Carbon Fibre Body - Granted - *372034-001*
- Design - 3D Tic Tac Toe - Granted - *401762-001*
- Design - Electric Tic Tac Toe - Granted - *40211-001*

Honors and Achievements

- First Prize for Doctoral Lecture at MARS symposium, IISc, 2025.
- First Prize in NPCI Pravega Hackathon 2025, IISc Bangalore (For SereneVR)
- Third Prize in NPCI Pravega Hackathon 2026, IISc Bangalore (For CREAM)
- Design proposal for Viksit Bharat Digital Matrix 2026, a 6-month national deep-tech prototype hackathon on smart wearables and holistic wellness (proposed under DPIIT, Ministry of Commerce & Industry, Government of India; organized by FITT, IIT Delhi).
- Runner-up in Idea Pitch Hackathon at HIVE Conclave 2025, IIT Mandi (For GAITMATE)
- Best Performance Award, Best Innovation Award, and Best Coding Award—IEEE SSH 2024 (For ZenVR)
- Second Position in NVIDIA Art Restoration Hackathon at ICETCI 2023 (For DDCNN)
- Recipient of the ODAA Travel Grant (Synchronoss Technologies Travel Grant, IISc) to attend the Design Computing and Cognition (DCC 2026), Paris, France.
- National Level First Prize in Siemens Healthineers Innovation Think Tank Program (ITTCP), 2021 (For Portable Insulin Unit)
- Best Poster Award at IUCEE EPICS Conference at Hyderabad (For Foldable Helmet)
- Conferred as an Elite Academician from DST and TI Inc.
- University First Rank Holder & Best Outgoing Student (PG)
- University Eleventh Rank Holder (UG)
- GATE-ME Merit Scholarship (2015-17)
- Central Sector Merit Scholarship Scheme for graduate studies

Skill Enhancement Programs

- Eminent Resource Person
 - *Eminent Resource Person:* Executive Programme in Robotics (Batch 03)
Location: Indian Institute of Technology (IIT), Delhi (Virtual; 5-month program)
Sessions: Lectures on Machine Learning, Deep Learning, Transformers, and Vision–Language–Action (VLA) models
 - *Workshop:* A One-Day Workshop on "Agentic AI for Workflow Automation"
Location: Sensedge Transportation Systems and Solutions Pvt. Ltd.
 - *Workshop:* A One-Day Workshop on "Engineering Design"
Location: iHub, Indian Institute of Technology (IIT), Mandi

- *Workshop:* A One-Day Workshop on "A Crash Course in Product Design"
Location: Indian Institute of Technology (IIT), Mandi
- *Workshop:* A One-Day Hands-On Workshop on "AR-based Mobile App Development using Unity"
Location: RIPPLES, Open Day 2024, Indian Institute of Science (IISc), Bangalore
- *Invited Speaker:* 5-Day Spring School on Sports Technology, Machine Learning and Data Analytics
Location: Indian Institute of Technology (IIT), Delhi
Dates: March 2–6, 2026
- *Workshop:* A One-Day Hands-On Workshop on "Creative Learning using AR and VR"
Location: Santhanam Vidhyalaya Senior Secondary School (CBSE), Trichy
- Summer Faculty Research Program (SFRF)
 - Indian Institute of Technology (IIT), Delhi
 - *Project Topic:* Numerical Simulation of Microwave Processing of Metal Matrix Composites using Comsol
- Faculty Development Programs & Short Term Courses
 - Design Thinking Course - Dr William Oakes, EPICS, Purdue University
 - Topper in "Joy of Computing using Python" Course - NPTEL
- Certifications
 - Best Paper Award at ICoRD '23, PLMSS '23, IPRoMM '24
 - Certified SolidWorks Professional (CSWP) - Dassault Systèmes
 - Freehand Outline and Model Drawing - DOTE, Tamil Nadu
 - National Level First Prize in Essay Writing Competition - Ministry of Shipping, India
 - Won a Fellowship Grant for PG Project from Tamil Nadu State Council for Science and Technology (TNSCST)

Roles and Responsibilities

- Life Member - Association for Designers of India (ADI)
- Student Member - ACM (Association for Computing Machinery) (1734505)
- Student Member - AMM (Association for Machines and Mechanisms) (A20240027)
- Student Member - Association for Computational Linguistics (ACL)
- Associate Member - The Design Society (DS02828)
- Student Member - Design Research Society
- IEEE Member (99648614)
- Member - EdTech Society (10618)
- Founder - Team Eureka - Electric Mobility Design Club
- Secretary - College Science Club (GCE)
- Editor-In-Chief - College Magazine (GCE)

Beyond Curriculum

Software Design:

Passionate about developing innovative applications inspired by unconventional and imaginative ideas, leveraging emerging technologies such as AI and XR.

Hardware Design:

Design and prototype products aimed at addressing real-world challenges and promoting societal well-being.

Algorithmic Art:

Engage in the creation of algorithmically generated art through computational methods and creative coding using processing.