# AI RESEARCH CENTRE, WOXSEN UNIVERSITY ( AIRC-WOU )

Applied Research | Enterprise Systems Engineering | Production-Grade Software Delivery

Centres: Hyderabad | New York

# Executive Briefing Structure & Agenda

**01 — Context & Profile**
Establishing the strategic imperative of moving from AI pilot systems to scaled, production-ready enterprise environments.

**02 — Focus Pillars**
A deep dive into our core research competence: Agentic Systems, Cognitive Systems, Physical AI, and Governance/MLOps.

**03 — Project Portfolio**
Case studies of actual systems delivered over the past year: MCP connectors, Voice-AI schedulers, robotics, and defense RAG.

**04 — Operational Models**
A transparent look at our engineering rigor, environment delivery lifecycle, and computational infrastructure.

**05 — Roadmap & Partners**
The partner ecosystem, upskilling PG programs, and next steps for establishing strategic partnerships.



# Executive Summary: The Transition to Production-Ready AI

## Moving from Exploration to Execution

Enterprise AI adoption is undergoing a fundamental transition. Simple chat interfaces and sandbox pilots are no longer sufficient.

AIRC bridges the gap between academic depth and enterprise-grade software execution. We build, audit, and support secure architectures tailored for regulated industries and strategic partners.

AIRC provides end-to-end capabilities: theoretical machine learning models backed by robust controls, row-level databases, and Keycloak security policies.




**92%**

**PRODUCTION SHIFT**

Organizations moving beyond pilot programs.

**6+**

**FOCUS LABS**

Active specialized research laboratories.

**10+**

**SOLUTIONS DEPLOYED**

Custom enterprise integrations deployed.

**40+**

**ACTIVE PROJECTS**

Systems engineered across multiple domains.

# Who We Are: Academic Rigor Meets Commercial Delivery



## The Operational Dichotomy Resolved

Traditional tech consulting firms often lack deep scientific knowledge, relying on default API configurations.

Conversely, pure academic laboratories publish papers but rarely deliver production-grade code bases.

**AIRC** integrates both wings. By combining theoretical computer science with agile, professional software engineering, we deliver robust solutions that run under strict operational SLAs.

### OPERATIONAL CORE

Leveraging Woxsen University's infrastructure and a full-time engineering talent pool in Hyderabad, AIRC operates like a high-performance innovation engine.






# Institutional Focus: The Four Core Service Verticals



AIRC delivers end-to-end value across the AI innovation lifecycle, from deep research to real-world deployment, empowering organizations with **secure, intelligent and scalable** solutions.

## 01 APPLIED RESEARCH & ALGORITHMS

- Advancing the frontiers of AI through cutting-edge research.
- Developing novel algorithms, models and datasets.
- Publishing books, papers and IP for societal impact.

## 02 BESPOKE PRODUCT ENGINEERING

- Building secure, scalable and intelligent enterprise solutions.
- End-to-end development from architecture to deployment.
- Custom web, mobile, APIs and data platforms.

**AIRC**

Driving AI Innovation. Creating Real-World Impact.

## 03 CORPORATE UPSKILLING & EDUCATION

- Industry-aligned PG Certifications (12–16 weeks).
- Programs in Generative AI, LLM Engineering & Modern Tech.
- Hands-on training, hackathons and workshops.

## 04 GOVERNANCE, AUDIT & SECURITY

- Ensuring compliance with global standards (HIPAA, GDPR, ISO).
- Designing secure architectures with RLS, encryption and isolation.
- Conducting audits, assessments and risk reviews.

**SERVING KEY INDUSTRIES**

GOVERNMENT | HEALTHCARE | EDUCATION | MANUFACTURING | DEFENCE | FINANCE | RETAIL | SPORTS

# Engineering Pillar 01: Agentic & Decisive Systems

ENABLING AUTONOMOUS ENTERPRISE WORKFLOWS

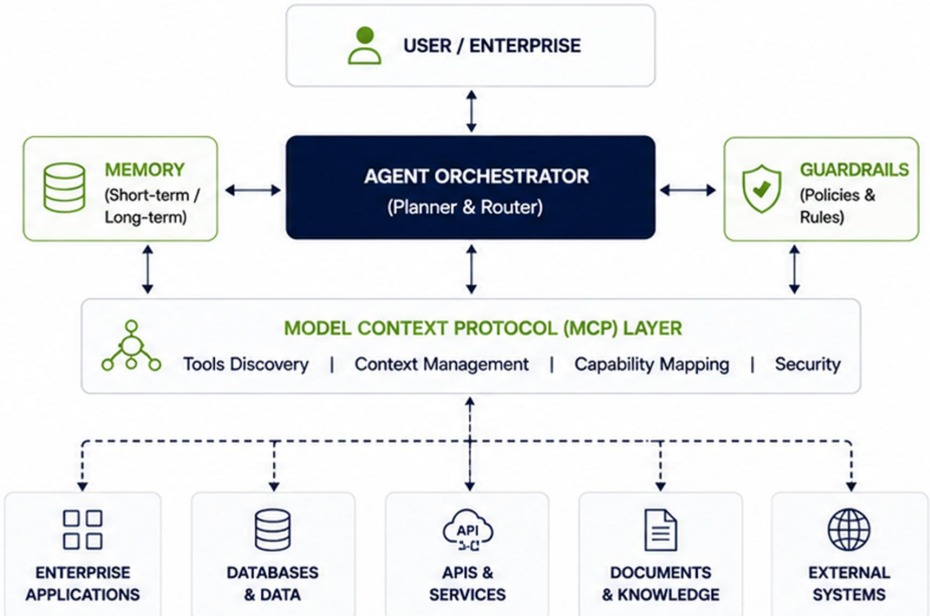
## OUR FOCUS

**Model Context Protocol (MCP)**
Standardized architecture that maps enterprise systems to LLM tools seamlessly.

**Deterministic Controls**
Combining LLM decisioning with rule-based guardrails for safe, reliable and auditable outcomes.

**Multi-Agent Coordination**
State-graph based orchestration to route tasks across specialized agents and systems.

## AGENTIC AI ARCHITECTURE




## TECHNOLOGY STACK

| | |
|---|---|
| LLM PROVIDERS | OpenAI, Claude, Gemini, Llama, Mistral |
| ORCHESTRATION | LangGraph, Semantic Kernel, CrewAI |
| MCP FRAMEWORK | FastMCP, Model Context Protocol |
| BACKEND | Python, FastAPI |
| DATA & MEMORY | PostgreSQL, Redis, Vector DB (Chroma/FAISS) |
| INFRASTRUCTURE | Docker, Kubernetes, Azure / On-Prem |
| OBSERVABILITY | LangSmith, Prometheus, Grafana |

## BUSINESS OUTCOMES

**AUTONOMOUS DECISIONING**
Reduce manual effort and accelerate response time.

**RELIABLE & SAFE OPERATIONS**
Guardrails and policies ensure accuracy and compliance.

**SCALABLE & ADAPTIVE SYSTEMS**
Multi-agent architecture scales with business complexity.

**ENTERPRISE GOVERNANCE**
Full auditability, observability and control.

# Engineering Pillar 02: Cognitive & Language Intelligence

ADVANCED NLP.
KNOWLEDGE THAT WORKS.

## Enterprise NLP and Retrieval Architecture for Accurate, Contextual and Trusted AI Outcomes

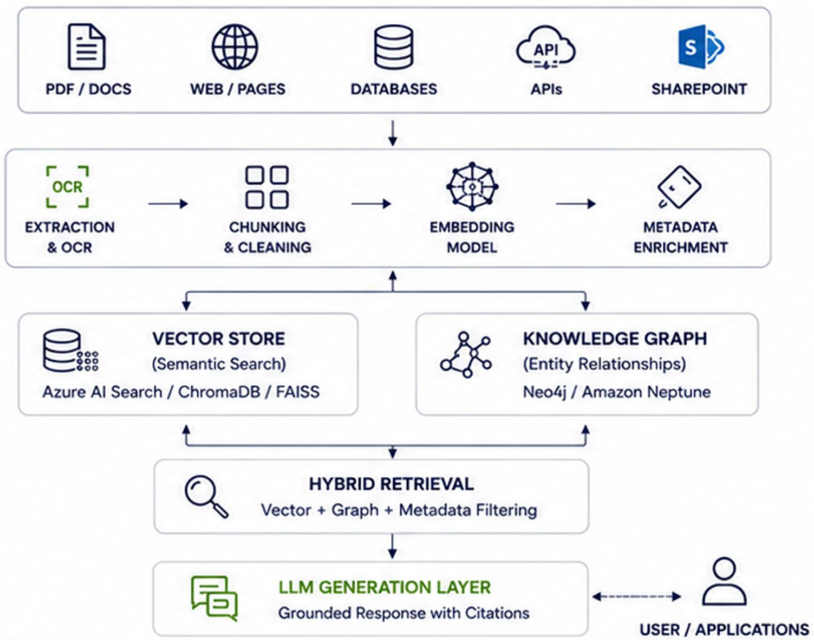
### OUR FOCUS

**Graph RAG**
Combines vector search with knowledge graph relationships to overcome semantic search limitations and deliver deeper insights.

**Enterprise Knowledge Ingestion**
Ingests data from multiple sources, processes and structures it for high-quality retrieval and reasoning.

**Contextual & Reliable Responses**
Grounds LLM responses in verified enterprise data with citations, traceability and access controls.

### ENTERPRISE GRAPH RAG ARCHITECTURE




### TECHNOLOGY STACK

| | |
|---|---|
| INGESTION | Unstructured, SharePoint, API Connectors |
| PROCESSING | OCR (Tesseract, Azure OCR), Python, LangChain |
| EMBEDDING | OpenAI, Azure OpenAI, HuggingFace Models |
| VECTOR DB | Azure AI Search, ChromaDB, FAISS |
| GRAPH DB | Neo4j, Amazon Neptune |
| LLM / GENERATION | OpenAI, Claude, Llama 3, Mistral, Azure OpenAI |
| GOVERNANCE | RBAC, Data Masking, Audit Logs |
| OBSERVABILITY | LangSmith, Prometheus, Grafana |

**ACCURATE ANSWERS**
Grounded in enterprise data with high relevance.

**TRUST & TRANSPARENCY**
Citations, traceability and source visibility.

**BETTER DECISION MAKING**
Deeper insights through entity relationships and context.

**SECURE & COMPLIANT**
Enterprise-grade security, privacy and governance.

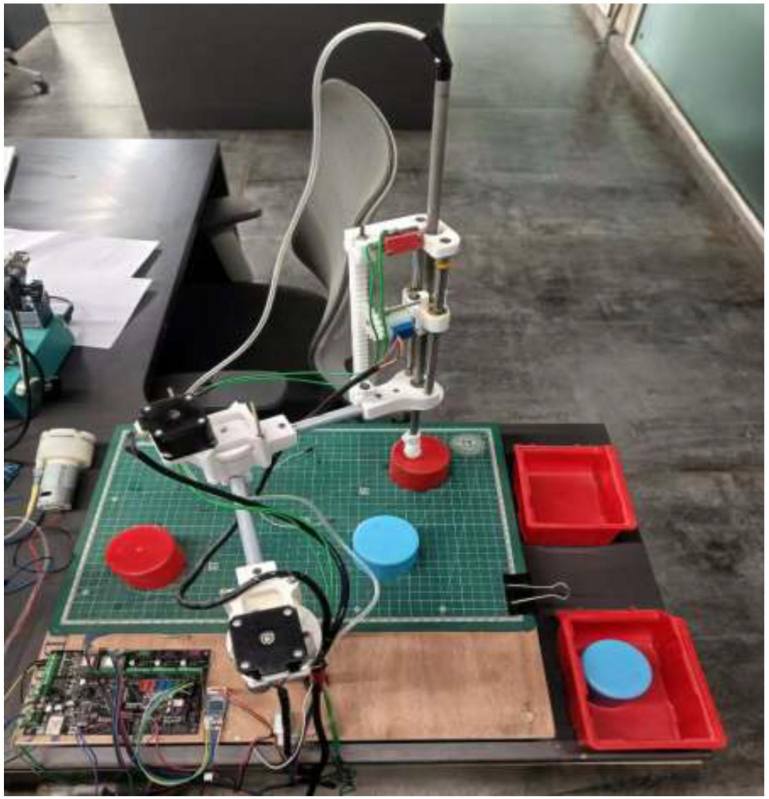
# Engineering Pillar 03: Vision, Graphics & Physical AI

## Spatial Awareness & Robotic Control

Perception Networks: Implementing Yolopv3 and HybridNets to segment lanes and track moving obstacles.

Temporal Motion Modeling: Using LSTM layers to integrate frame-sequence steering and throttle control.

Simulation Testing: Deploying complex vehicle physics simulators (BeamNG) to train models prior to road testing.



*AIRC SCARA Robotic Sorting Arm deployed in the university hardware laboratory.*

# Engineering Pillar 04: Governance, Ethics & MLOps

## Reliability, Safety, and Compliance Guardrails

Outbound Network Security: Implementing SSRF proxy layers blocking servers from requesting unauthorized external resources.

Input-Output Sanitization: Regular-expression parsing checking prompt strings for injection attacks.

Explainable AI (XAI): Generating cryptographically signed, timestamped audit logs tracing tool execution.

**1. Input Validation Gate**

Sanitizing user queries for prompt-injection patterns.

**2. Outbound SSRF Protection**

Hardening API requests via proxy controls.

**3. Atomic Audit Logging**

Writing execution context to database audit files.

# Portfolio Overview: Selected Client Engagements

| Client Sector | Engagement | System Details |
|---|---|---|
| Enterprise SaaS | MCP Server Hub | Secure API Gateway Integration |
| Healthcare | Medphone AI Voice | Concurrency-Hardened Voice Agent |
| Fintech | QuantumFAI Portal | Multi-Factor Traction Scoring |
| Defense | Thesis RAG Chatbot | Offline Localized Search |

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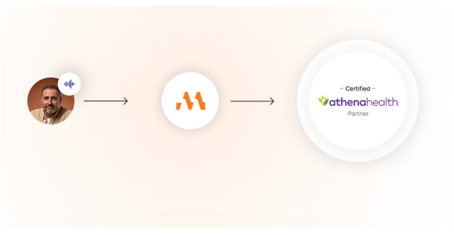
**Achieved 1.2M in Revenue Growth**

# Agentic AI Projects

## Agentic AI for Healthcare – Medphone AI

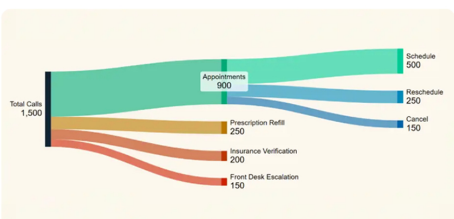
Medphone AI is an intelligent, 24/7 voice-based Agentic AI solution designed to automate healthcare front-desk operations. It independently handles patient calls, appointment scheduling, insurance verification, prescription refill requests, and intelligent escalation,while integrating with healthcare systems to streamline workflows.

Key Focus:
Autonomous AI Agents | Voice AI | Healthcare Automation | EHR Integration | Patient Experience




### Seamlessly Bridging Patient requests to the EHR

Patient requests are captured, structured, and securely synced to your EHR — without manual data entry.




### Customer Journey Flow

Visualize how patient calls and messages move through your engagement funnel—from first contact to final outcome.

# Agentic AI Projects

## AVA – AI Admission Assistant

AVA is a next-generation, voice-first Agentic AI designed to transform university admissions and student enrollment. It engages prospective students through natural conversations, qualifies leads, understands their requirements, provides relevant information, and connects them with admission counselors.

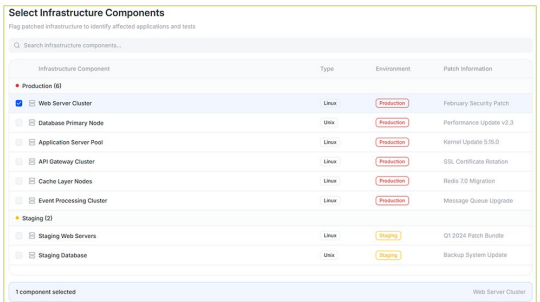
Key Focus:
AI-Powered Admissions | Voice AI | Agentic AI | Lead Qualification | Automated Follow-ups | Student Engagement

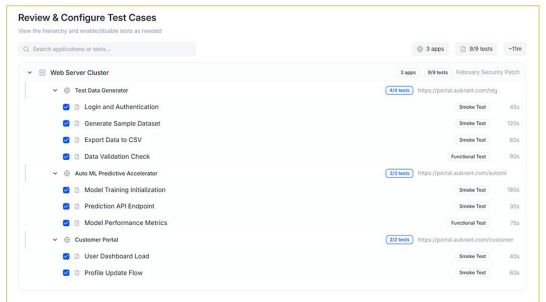


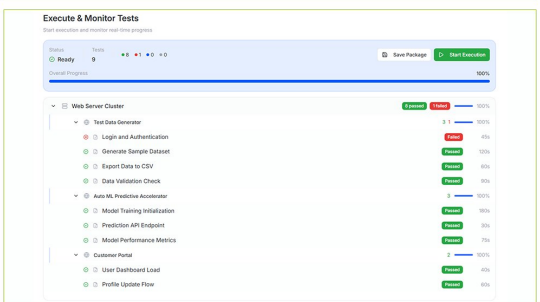
# Aubrant Digital – AI Powered Automated Regression Testing

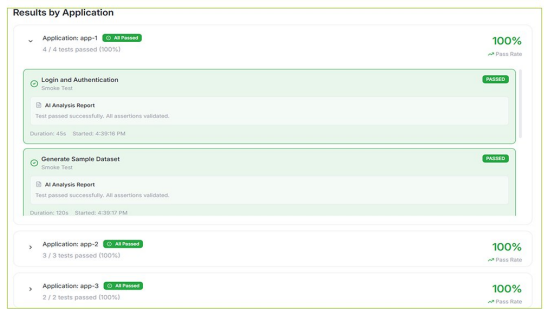
An Agentic AI solution that automates regression testing after infrastructure changes. It identifies affected applications and test cases, executes automated tests, analyzes results using AI, and generates evidence reports, making infrastructure changes traceable, faster,and easier to validate.

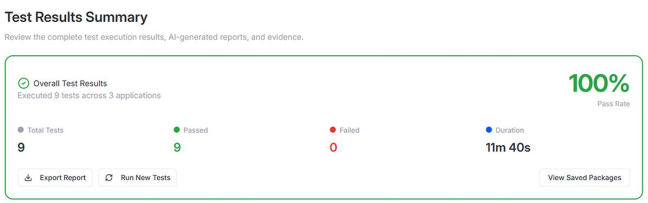
Focus: Agentic AI | Automated Testing | AI-Powered Analysis | Azure DevOps | Workflow Automation



# Agentic AI Projects

## Multi-Tenant MCP Hub: Exposing Enterprise APIs safely to LLMS

For LLMs to become operational, they must be allowed to read and write database records. Exposing internal APIs directly creates massive security risks.

The Multi-Tenant MCP Server solves this. It functions as a secure gateway: organizations register their back-end APIs, map user roles to tool permissions, and route assistant connections through a single point.

Next.js control plane handles onboarding and connection configurations, while a FastMCP data plane translates live tool calls dynamically.

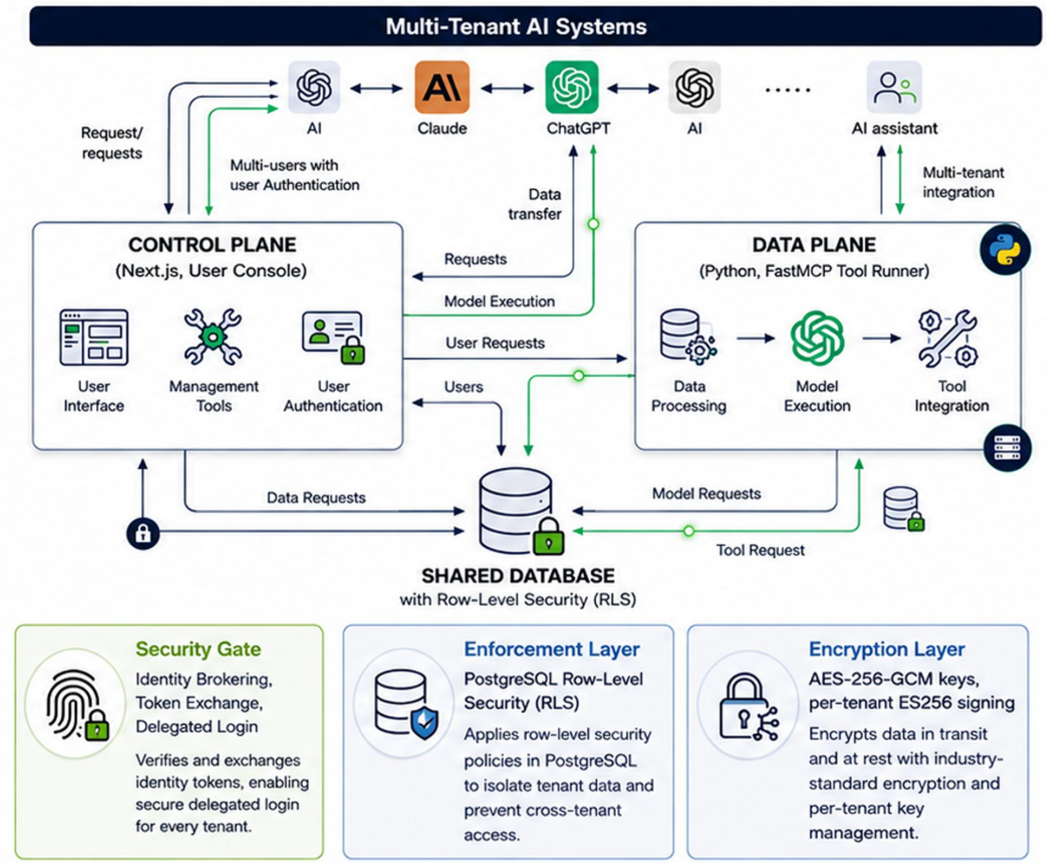
## Multi-Tenant MCP Server: Double-Isolated Security

Data isolation is enforced twice over. In the application layer, queries are scoped to the client's token. In the database layer, PostgreSQL row-level security (RLS) policies prevent cross-tenant queries.

Local Identity: Sign-in managed directly inside the Keycloak platform database.

Token Exchange: Trusting and validating corporate identity provider JWKS tokens at the API gateway.

Delegated login: Redirecting to the tenant's login screen and exchanging codes over signed channels, leaving passwords private.



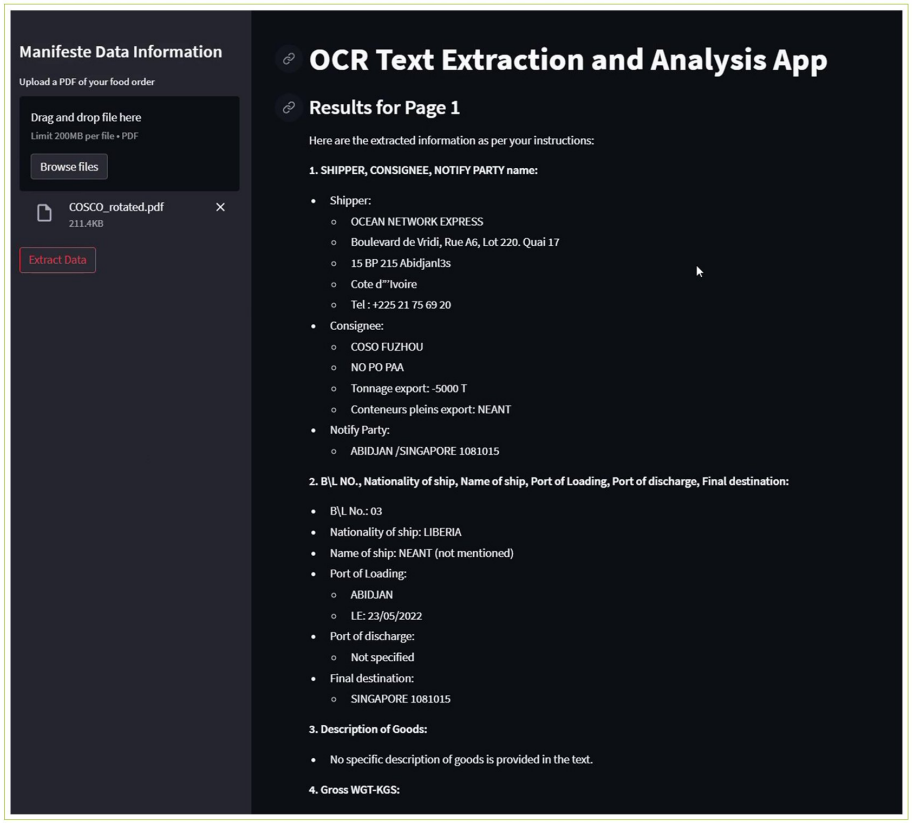
# Projects

## Ceiba Analytics – Intelligent Shipping Document Extraction

An AI-powered document intelligence solution that transforms complex shipping documents such as Bills of Lading and manifests into structured, actionable data.

Using OCR and AI, it extracts key logistics information and automatically generates clean, export-ready datasets.

Focus: Agentic AI | Document Intelligence | OCR | Generative AI | Logistics Automation



# Projects

## Autonomous Buggy: Campus-Scale Physical AI & Navigation

### Self Driving on Woxsen Campus

AIRC designed and engineered a self-driving shuttle to navigate Woxsen University's internal roads autonomously. This requires fusing real-time spatial indicators under noisy sensor conditions.

Sensor Integration: Real-time routing of video feed, GPS, IMU, steering, and throttle data.

Microcontrollers: Hardware pipeline mapping sensors to ESP32/Arduino chips, routing to a local Mac mini.

Campus testing: Captured road videos to train models to identify lane borders, pedestrians, and obstacles.

### Sim to Real Model Training

To build steering models without risking real buggy collisions, we designed a custom simulation pipeline.

BeamNG Simulator: Collected 50,000 frames of East Coast map driving data to pre-train our steering and throttle CNNs.

Temporal Processing: Integrated LSTM layers tracking 5-10 historical frames, providing movement context.

Data Augmentation: Evaluated CycleGANs to convert simulator textures to realistic campus environments.



*Self-balancing spatial navigation platform designed in AIRC labs.*

| Test Run | Model v1 (CNN) | Model v3 (Closed Feedback) |
|---|---|---|
| Test 1 | 0.0867 | 0.0504 (Exceeded) |
| Test 2 | 0.1313 | 0.1005 (Exceeded) |
| Test 3 | 0.0825 | 0.0595 (Exceeded) |

# Projects

## Thesis Chatbot: Semantic Defense Knowledge Synthesis

### Grounded NLP for Academic Research

AIRC developed a secure, conversational research chatbot for the College of Defence Management (CDM). The system enables officers to query, search, and synthesize content from dense thesis documents.

RAG Pipeline: Utilizes LangChain to combine semantic search and LLM-driven synthesis.

ChromaDB Vector Store: Indexes document corpora locally, mapping relationships dynamically.

Ollama Llama 3: Generates embeddings and model inferences on-premise, keeping military data completely confidential.




*AIRC localized semantic search interface running on private, on-premise infrastructure.*

# Projects

## QuantumFAI & Svarna Heritage: Fintech and Commerce Systems

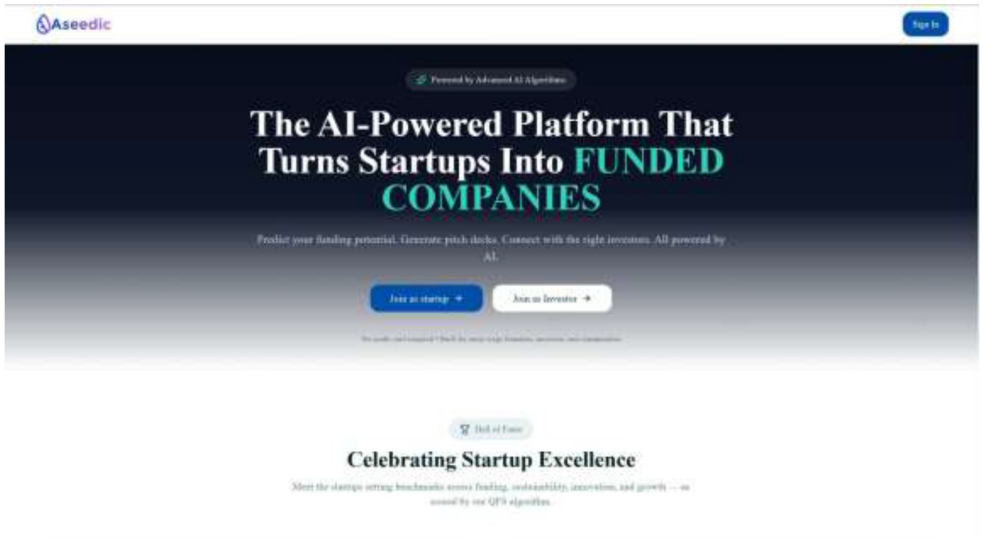
### E-Commerce and Startup Valuation Portals

AIRC designed and engineered two consumer-facing portals, demonstrating our capabilities in WebGL graphics and complex scoring engines.

Svarna Watch Configurator: Implemented a real-time 3D watch customizer using Three.js and React-Three-Fiber, running smoothly on mobile screens.

QuantumFAI Scoring Engine: Built an automated valuation model that converts startup metrics (traction, team, IP) into a Funding Score (QFS).

Match Flow: Designed a card interface allowing founders and investors to match and coordinate intros.




*Startup valuation scorer (QFS) and investor matchmaking portal.*

# Projects

## AdvertFlair - 3D Similarity Search Automation

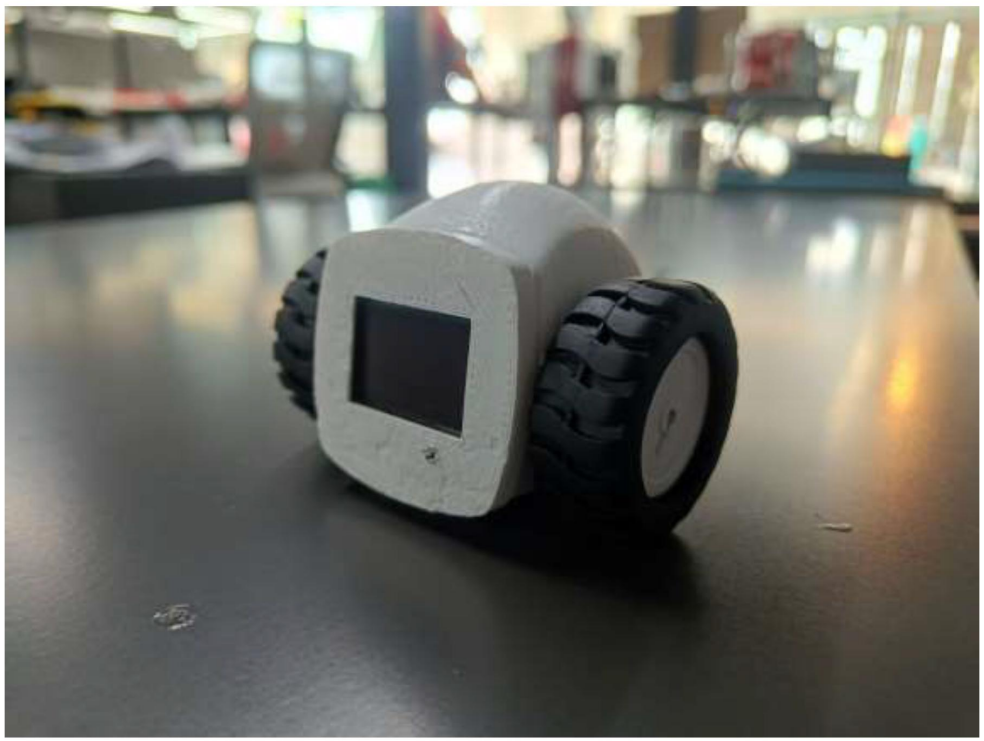
### AI-Powered Image Similarity Retrieval

AdvertFlair creates 3D assets for advertising. Modeling redundant objects is expensive. We built a visual similarity pipeline to find and reuse existing 3D models.

Feature Extraction: Utilized a ResNet50 deep learning model to parse visual features from uploaded images.

Cosine Similarity: Calculates distance vectors to recommend the top 20 visually matching models from the model library.

Streamlit Interface: A lightweight user interface allowing designers to upload images and instantly pull asset links.



*Robotic workbench sensor stack testing visual object matching algorithms.*

# Projects

## BrandScapes Worldwide - Customer Segment Clustering

### Geo-Clustering for Regional Market Expansion

A global retailer needed to navigate localized consumer marketing campaigns across 18 countries. We built a clustering pipeline to map regional habits.

Hierarchical Clustering: Processed over 200 consumer features, including regional buying power and cultural indicators.

Dynamic Evolution: Utilized time-series analysis to track segment migration over time, mapping trend shifts.

Decision Acceleration: Opportunity heatmaps allowed board teams to evaluate market entries three times faster.

**19%**

**SALES LIFT**

Achieved in Tier-2 Asian markets due to hyper-localized product clustering.

**Optimized**

**MEDIA ALLOCATION**

Marketing spend saved by targeting high-affinity segments.

**200+**

**REGIONAL FEATURES**

Buying power, demographics, and cultural indicators processed.

**3x**

**SPEED MULTIPLIER**

Venture and market entry decisions resolved three times faster.

# Engineering Rigor: Our Delivery Lifecycle

DISCIPLINED PROCESS.
MEASURABLE OUTCOMES.

A structured, repeatable and quality-driven lifecycle that ensures every solution we build is **secure, scalable and impactful.**

## 01 DISCOVER



- Understand business objectives and challenges
- Stakeholder workshops and needs analysis
- Feasibility & opportunity assessment

## 02 DEFINE



- Define scope, use cases and success metrics
- Solution architecture blueprint
- Data, security and compliance planning

## 03 DESIGN



- Detailed solution design
- Data models & system design
- UX/UI and integration planning

## 04 DEVELOP



- Agile development (iterative sprints)
- Code quality, reviews and standards
- Secure coding practices

## 05 TEST



- Functional & non-functional testing
- Security, performance and regression testing
- User acceptance testing

## 06 DEPLOY



- CI/CD pipeline automation
- Containerized deployments
- Staged rollout with rollback strategy

## 07 MONITOR



- Real-time monitoring and alerting
- Performance, usage and cost tracking
- Issue detection and incident management

## 08 OPTIMIZE



- Continuous improvement and model tuning
- Feedback-driven enhancements
- Innovation and roadmap evolution

Governed by best practices in **Security, Compliance, Architecture Review** and **Quality Assurance** throughout the lifecycle.

## KEY ENABLERS

- Cross-functional Expert Teams
- Agile & DevOps Practices
- Security & Privacy by Design
- Scalable Cloud Infrastructure
- Data Governance & Quality
- Standards & Compliance
- Metrics-driven Delivery

# Global Ecosystem: Academic, Research & Venture Partners

## Technology & Engineering

- Advertflair
- Course5
- WaysAhead
- Xaltius
- Postjer Group
- Edubuk

## Healthcare & Sustainability

- AgMatrix
- Banka Bio
- Prognica
- Dhavalas
- Sleep Therapeutics
- The Scubaverse

## Academic & Research

- Woxsen University
- University of Johannesburg
- TIH
- African AI Academy
- IBA
- PPCRC
- ECCU

## Strategic & Ventures

- Venus Ventures
- Xcel
- Autorox
- Tianno
- Arcomm
- Boston SC
- Heliogic
- Golden Signatures

# Events

AIRC hosts events every academic year that bring together experts, innovators, and changemakers to advance responsible AI across industries and society

### Future Tech Summit 2026

A dynamic summit to empower students and professionals with future ready skills, leadership insights, and career opportunities.

- Future-Ready Skills
- Leadership Insights
- Career Opportunities
- Community & Growth

### ICSCI

An international forum bringing together researchers, academicians, and industry professionals to explore innovations in soft computing and real world applications.

- Research Collaboration
- Innovative Solutions
- Global Exchange
- Real-world Applications

### AI Governance in Healthcare & Agriculture

A focused forum on responsible AI governance, policy frameworks, and ethical innovation in healthcare and agriculture.

- Policy Governance
- Healthcare Innovation
- Sustainable Agriculture
- Ethical AI

### AIKP'26

A premier annual flagship conference bringing together global researchers, industry leaders, and innovators to advance AI for societal impact.

- Research & Innovation
- Industry Collaboration
- Knowledge Exchange
- Global Impact

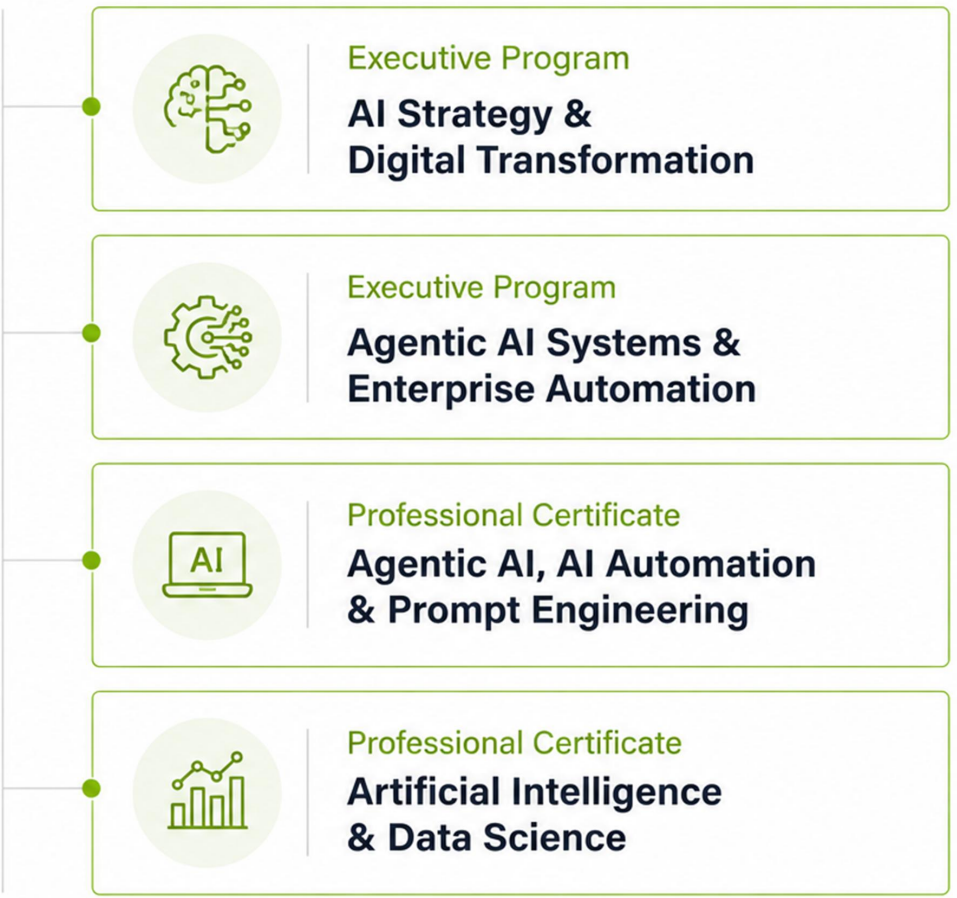
**Every Academic Year**
**Continuous Impact**

These events are organized by AIRC every academic year to promote knowledge sharing, innovation, and collaboration across communities.

# Executive Certification Courses

## Future-Ready Leadership. Certified Excellence.

Industry-focused executive programs and professional certifications designed to equip leaders with AI expertise, automation capabilities, and data-driven insights to drive transformation.



# Awards

## Recognized for Innovation. Research. Impact. Excellence.

These recognitions reflect our commitment to advancing responsible AI, driving innovation and creating meainngful impact for industry and society.

**Excellence in Innovation**

**Impactful Research**

**Industry Recognition**

**Global Collaboration**



# Esteemed Members



## Dr. Raul Villamarin Rodriguez

**Vice President, Woxsen University**

Dr. Raul Villamarin Rodriguez is a computational social scientist working at the intersection of Artificial Intelligence, Cognitive Psychology, Behavioural Science, Decision Sciences, and Organizational Behaviour.

His research focuses on Human Centered AI, AI Psychology, human AI interaction, behavioural dynamics, and intelligent decision making.

His work explores how AI and human cognition interact to shape judgment, behaviour, organizational intelligence, and institutional resilience.

He has authored 70+ peer reviewed publications and 30+ books with research and advisory engagements spanning AI governance, business, and society.



## Dr. Hemachandran K

**Director AI Research Centre**

Dr. Hemachandran specializes in Artificial Intelligence, AI Governance, Responsible AI, Deep Tech, Business Analytics, Robotics, and emerging technologies.

Dr. Hemachandran is an Academician of the International Eurasian Academy of Sciences (IEAS), UNESCO Expert, European Commission Tech Expert, AI 2030 Global Fellow, and ATL Mentor of Change.

He has authored and edited numerous academic books and holds multiple patents spanning healthcare, agriculture, aviation, education, finance, and smart cities.

His work focuses on translating advanced AI research into impactful real world solutions while fostering industry academia collaboration and responsible AI innovation.



## Dr. Rajesh Kumar K V

**Chief Technology Officer**
**AI Research Centre**

Dr. Rajesh Kumar is an AI Product Consultant, International Speaker, and Agile Leader with over 12 years of experience across research, consulting, and product development.

His expertise spans AI/ML,Agentic AI, LLM solutions, predictive analytics, decision intelligence,and enterprise Agile transformation.

He has designed LLM-powered copilots and multi agent systems and has contributed to applied AI research across healthcare, sports analytics, defence, FinTech, and EdTech.

Dr. Rajesh Kumar holds a PhD in Artificial Intelligence from VIT and an M.Tech in Embedded Systems

# Advisory Board Members



## Ravindra Barlingay

**CEO, IITM C-DOT Samgnya Technologies Foundation**
**Deep-Tech & Quantum Technology Leader**

Ravindra Barlingay brings 30+ years of experience in technology, innovation, AI, IoT, robotics, and digital transformation.

He leads India's National Hub for Quantum Communication under the National Quantum Mission.

His focusing on Quantum Communication, AI, Cybersecurity, Deep Tech Innovation, and technology commercialisation.



## Prof. Abejide Ade-Ibijola

**Professor of AI, Distinguished Visiting Professor**
**Woxsen University, Founder, GRIT Lab Africa**

Professor Abejide Ade-Ibijola is an AI researcher and academic specialising in Artificial Intelligence, algorithms, AI applications, innovation, and technology-driven problem solving.

He has published 90+ research articles, received 100+ awards and recognitions, and contributed significantly to AI research, education, and technology skills development.

His work focuses on translating AI research into real world innovations, industry applications, and inclusive technology development.



## Pranesh Misra

**Chairman & Managing Director,**
**Brandscapes Worldwide, Mumbai**

Pranesh Misra is a marketing and insights leader with 30+ years of experience in marketing, market research, and advertising.

He specializes in brand strategy, market research, consumer segmentation, advanced analytics, and marketing mix modelling.

Pranesh Misra helping organizations turn data and insights into impactful business strategies.



## Dmytro Spodarets

**Fractional CTO , AI & Technology Executive**

Dmytro Spodarets is a technology executive specializing in AI infrastructure, AI Agents, MLOps, LLMOps, and AI strategy.

Dmytro Spodarets with 12+ years of engineering leadership experience.

Dmytro Spodarets also serves as a Board Advisor to AIRC, Woxsen University.

His contributing expertise in AI infrastructure and emerging technologies.



## Dr. Manjeet Rege

**AI Expert, Professor and Chair,**
**University of St. Thomas**

Dr. Manjeet Rege is an AI and data science expert specializing in Artificial Intelligence, Machine Learning, and Data Strategy.

He is Professor and Chair of the Department of Software and Data Science at the University of St. Thomas and Director of its Center for Applied Artificial Intelligence.

With his strong academic leadership and industry oriented approach,He contributes to advancing responsible AI, applied machine learning, and the future of intelligent technologies.



## Billa Bhandari

**Founder & CEO, VitalProbe Inc,**
**Advisor, Woxsen University**

Billa Bhandari is a technology and innovation leader specializing in AI powered wearable healthcare, cybersecurity, public policy, and governance, with a focus on longevity and human physiology.

He also serves as an Advisor to Woxsen University's AI Innovation Lab, contributing his industry experience and strategic perspective to initiatives in AI research, innovation, and technology development.

Through his work, he brings together technology, policy, and human centered innovation to help shape the future of intelligent healthcare and emerging technologies.



## Vinay Solanki

**Chief Business Officer, Elecbits,**
**IIM-A,Author and Investor**

Vinay Solanki is a business and technology leader specializing in AIoT, electronics, digital strategy, product commercialization, partnerships.

His market expansion, with extensive experience scaling technology businesses from concept to commercial success.

With a strong understanding of both technology and business, Vinay contributes to driving digital transformation, AIoT innovation, product development, and technology led market expansion, making him a valuable leader in the evolving technology ecosystem.



## Rrahul Sethi

**Metaverse Expert & Founder,**
**Metaverse911**

Rrahul Sethi is a technology entrepreneur and immersive tech expert with 25+ years of experience in AR/VR/MR, Metaverse, AI, and immersive experiences.

He has worked with 50+ Fortune 500 companies and focuses on delivering ROI driven solutions for training, marketing, product experiences, and digital transformation.

His work focuses on helping organizations leverage immersive and emerging technologies to enhance customer engagement, business operations, and digital experiences.



## Lt Col Om Prakash Mishra

**Indian Army Veteran,AI & ML Expert,**
**Technology & Project Management**

Lt Col Om Prakash Mishra is an Indian Army veteran with 24+ years of experience in IT project management, AI & ML, technology infrastructure, training, and electric vehicle technology.

He currently serves as an Advisor at Woxsen University, guiding the Human Machine Interaction Lab at the intersection of AI, Neuroscience, and Cognitive Psychology.

His contributing to research and innovation in human centered technology and intelligent systems.



## Dr. D. P. Kothari

**Former Vice Chancellor, VIT University**
**Former Director i/c, IIT Delhi**

Dr. D. P. Kothari is a distinguished academic, researcher, and educational leader with 50+ years of experience in teaching, research, and academic administration.

He has authored 63 books and 845 research papers, guided 52 PhD scholars, and holds 3 patents.

He has served in several prominent academic leadership roles, including Vice Chancellor of VIT University and Director i/c of IIT Delhi.

He currently serves as Honorary Adjunct Professor at VNIT Nagpur, continuing his contributions to research, innovation, and higher education.



## Dr. Harshini Errabelli

**Founder & Director, Sleep Therapeutics,MD (Pulmonology)**
**Interventional Pulmonologist,AI Research Advisor**

Dr. Harshini Errabelli is a pulmonologist and sleep specialist with expertise in sleep medicine, respiratory health, medical research, and clinical development.

As an AI Research Advisor to AIRC, she brings valuable clinical expertise to the intersection of AI, healthcare innovation, and patient centered care.

Her work focuses on advancing healthcare through the integration of clinical knowledge, emerging technologies, and innovative approaches to improve patient outcomes and transform the future of medical care.



## Dr. Madhusudan Pal

**Scientist 'G' & Director,**
**Centres of Excellence, FDDI**

Dr. Madhusudan Pal is a senior scientist and academic leader with expertise in research, innovation, R&D, industry collaboration, and technology driven skill development.

At FDDI, he leads the Centres of Excellence, fostering interdisciplinary research, knowledge transfer, and industry academia partnerships.

His work focuses on translating research and innovation into practical industry applications, while strengthening collaboration between academia, research institutions, and industry.

# Research Associates



## Dr. Shyam Joshi

**Assistant Professor of Artificial Intelligence, Woxsen University, PhD, IIT Delhi**

Dr. Shyam Joshi is an AI researcher specializing in Mathematical AI, Computational Neuroscience, Neural Dynamics, Explainable AI, and Intelligent Systems.

He holds a PhD from IIT Delhi and has postdoctoral research experience at the University of Naples Federico II, Italy, and IIT Lodhpur.

His research focuses on Human Machine Intelligence, Computational Intelligence, Dynamical Systems, and Intelligent Robotics, with expertise in Machine Learning, Deep Learning, Neural Networks, and NLP. At Woxsen University, he contributes to AI education, interdisciplinary research, and mentoring the next generation of AI professionals.



## Dr. Bikash K. Pradhan

**Assistant Professor, AI Researcher, AI in Medicine & Responsible AI**

Dr. Bikash K. Pradhan is an AI researcher and Assistant Professor at Woxsen University.

He is specializing in AI in Medicine, Biomedical Signal Processing, Explainable AI, and Responsible AI.

His research focuses on developing intelligent healthcare solutions that combine AI, medical technologies, and data driven approaches.With a PhD in Biomedical/Medical Engineering from NIT Rourkela and postdoctoral research experience at the Czech Technical University in Prague.

His work emphasizes ethical AI, governance, transparency, and patient centered innovation.



## Dr. Chaitanya Madhaw Pareek

**Assistant Professor, Woxsen University, Agricultural Engineer, AI in Agriculture**

Dr. Chaitanya Madhaw Pareek is an Agricultural Engineer specializing in AI in Agriculture, Precision Agriculture, Agricultural Automation, and Smart Farming Technologies.

He holds a PhD and M.Tech in Farm Machinery & Power Engineering from IIT Kharagpur.

His research focuses on applying AI, data analytics, and intelligent technologies to enhance agricultural decision making, resource efficiency, automation, and sustainable farming. His work contributes to advancing technology driven and data-informed solutions for the future of agriculture.



## Dr. Chhavi Sharma

**Senior Research Scientist, AI Research Centre, Woxsen University**

Dr. Chhavi Sharma is a research scientist specializing in nanomaterials, nanocomposites, biomaterials, and functionalized materials for biomedical, agricultural, optoelectronic, and automotive applications.

She holds a PhD in Material Science and brings extensive research experience from CSIR National Physical Laboratory.

Her current work focuses on integrating Material Science with Artificial Intelligence, Machine Learning, and Deep Learning to develop innovative, data driven research solutions and interdisciplinary approach bridges advanced materials research with emerging AI technologies to address complex challenges across multiple sectors.

# Core Team



## Sai Adarsh Maddu

**Manager AI Research Centre**

Sai Adarsh Maddu serves as the Manager of the AI Research Centre (AIRC) at Woxsen University, where he oversees research operations, strategic partnerships, outreach, marketing, and collaborative initiatives. He plays a key role in building industry academia collaborations, strengthening stakeholder engagement, and supporting AI-driven research, innovation, and technology initiatives.

He leads the planning and execution of national & international conferences, research forums, workshops, Faculty Development Programmes (FDPs), bootcamps, and other academic & industry engagement activities.

His responsibilities also include coordinating branding, communications, partnership development , outreach initiatives that enhance the Centre's visibility and foster meaningful collaborations with academia, industry, government, and global organizations.



## Shaik Anju

**Manager and Product Commercialization Strategist**

Shaik Anju brings extensive experience in business development, customer success, strategic partnerships, key account management, and product commercialization. As AI Research Centre Manager at Woxsen University, she drives AI research, innovation, industry engagement, and commercialization initiatives, connecting research with emerging market opportunities.

Her role encompasses market development, industry partnerships, product positioning, market research, commercialization strategy, and business development. She works closely with students, researchers, businesses, and industry leaders to transform AI research into practical solutions, collaborative opportunities, and real world impact.

With expertise in AI research analysis, product marketing strategy, strategic partnerships, team leadership, customer success, and revenue growth, she helps position AIRC at the intersection of AI research, industry, and market innovation.



## Pankaj Kumar Singh

**Senior AI Engineer**

I build production-ready LLM systems that solve real world problems. With 8+ years in deep tech and 4 years in generative AI.

I currently serve as Senior AI Engineer at the AI Research Centre, Woxsen University, driving AI solutions from problem definition to production adoption.

My recent work includes Medphone.ai, an AI powered patient intake and appointment system; lockmcp.ai, a secure multitenant MCP hub for governing AI agent access; and LEAP, a learning platform serving 2,000+ learners across 28 courses.

Previously, I co founded two deep tech ventures, led hospital pilot deployments, reached the Shark Tank India semi finals, and hold three patents across robotics, multilingual AI, and 3D projection.



## Vishal Kumar Sharma

**Senior Project Engineer**

With over 9 years of diverse, cross functional experience, Vishal Kumar specialised in robots manufacturing, PCB design, embedded systems (C, Python), and full-stack web development.

In current role, He is manage a cross functional team of engineers driving innovations in autonomous systems, including spearheading the "Dozer" vision based navigation prototype (Autonomous Buggy) and managing workflows for the predictive intelligence platforms. Commitment to technical innovation is highlighted by my extensive intellectual property portfolio, holding 15 patents (including three granted) spanning areas such as wearable safety devices and structural health monitoring.

Furthermore, He have contributed significantly to academic literature with two high impact research papers (Q1 and Q2) and five published book chapters.

He holds a B.Tech. in Electronics and Communication Engineering.

# Engineers



## Samir Anil Jumade

**Senior Blockchain Engineer, Web3 & Smart Contract Developer**

Samir Anil Jumade is a Senior Blockchain Engineer with 4+ years of experience in blockchain and Web3 development.

He specializes in Solidity, Ethereum, Hyperledger Besu, Smart Contracts, and DApp Development.

He is expertise in building secure, scalable, and enterprise grade blockchain solutions.

He is passionate about developing innovative blockchain applications and integrating AI with decentralized technologies.



## Janumula Madhav

**AI Engineer**

He is proficient in tools like n8n, LangGraph, and Ollama.

Currently he is working as an AI Engineer at AI RESEARCH CENTER , Woxsen University, driving innovation in intelligent systems.

Always eager to explore new technologies and build cutting edge AI powered solutions.

Recent work:

Medphone.ai an AI phone intake system that turns patient calls into booked appointments. Telnyx voice, LangChain speech parsing, Athena EHR resolution, running against live patient data.

lockmcp.ai a multitenant Model Context Protocol hub that governs which APIs an AI agent is allowed to reach.



## Sobit Prasad

**FullStack Developer**

Sobit Prasad is a Full Stack Engineer and AI Builder focused on creating AI native products, developer tools, and scalable web applications.
He is specialize in TypeScript, JavaScript, Python, React, Next.js, Node.js, PostgreSQL, Docker, and cloud technologies, with a strong focus on production ready software.

Currently, He is work at an AI Research Centre, building large scale applications used by thousands of users while exploring practical applications of Generative AI, LLMs, and AI agents. I also build AI powered SaaS products that simplify workflows for developers and businesses.

Passionate about system design, open source, and technical education, my goal is to build impactful products that scale to millions of users while contributing to the developer community.

Core Technologies: Next.js, React, Node.js, TypeScript, Python, PostgreSQL, Docker, AWS, Cloudflare, AI Agents, LLMs, REST APIs & System Design.



## Shaik Shoaib

**Robotics Engineer**

Shaik Shoaib is a Robotic Engineer at the AI Research Centre-(AIRC), Woxsen University.

Shaik Shoaib is specialize in robotics, embedded systems, and intelligent automation, with experience in designing robotic systems, developing embedded hardware, programming micro controllers, and integrating sensors, actuators, and computer vision.

His interests include robotic manipulation, autonomous systems, AI driven robotics, and human robot interaction. He enjoy transforming innovative ideas into practical solutions that address real world challenges while contributing to research and technological advancement.



## Harsha Sri Sairam

**3D Artist**

Harsha Sri Sairam is a 3D Artist and Creative Designer with 3 years of experience in 3D modeling, texturing, game UI, icon design, and graphic design.

He specialize in creating quality game ready assets, realistic materials and textures, product visualizations, and engaging digital creatives that combine aesthetics with functionality.

He is working with tools like Autodesk Maya, Substance Painter, Adobe Photoshop, Blender, Adobe Illustrator, and After Effects.

He can bring concepts to life through visually compelling designs and optimized 3D assets. He is passionate about blending creativity with technical precision to deliver impactful visual experiences across gaming, branding, and digital media.



## Karan Bharda

**Blockchain Engineer**

Karan Bharda isa Blockchain Engineer with over 2 years of experience spanning cybersecurity, Web3 security, and smart contract auditing.

He is technical background is built at the intersection of security research and software development.

With a primary focus on designing secure DeFi protocols and building resilient decentralized applications.
Leveraging a strong foundation in cybersecurity, He is specialize in conducting end to end smart contract audits and performing full stack blockchain integrations.

He is focus on identifying vulnerabilities early in the development lifecycle to deliver production ready, highly secure, and optimized blockchain architectures.

WOXSEN UNIVERSITY

AI RESEARCH CENTRE
Transforming the world with AI solutions

# AI RESEARCH CENTRE

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