



COIR MedTech

Centre of Innovation &
Research in Medical Technology

Clinically Grounded Innovation@KIIT
(In Partnership with KIMS & KIDS)

AI • Medical Devices

• Digital Health

**• Validation &
Regulatory Readiness**



Kalinga Institute of Industrial Technology (KIIT)
Deemed to be University
www.kiit.ac.in

Connect with us

Website: coir.kiit.ac.in/medtech/
Email: coir.medtech@kiit.ac.in |
head.coirmedtech@kiit.ac.in

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About us

The Centre of Innovation and Research (COIR) in Medical Technology at KIIT Deemed to be University is a flagship interdisciplinary initiative dedicated to advancing clinically relevant, ethically responsible, and globally competitive healthcare technologies. COIR MedTech integrates expertise across Engineering, Medical Sciences (KIMS), Dental Sciences (KIDS), Basic Sciences, Biotechnology, and Law, enabling seamless translation of research from laboratory innovation to bedside deployment. The centre is uniquely positioned to address real-world healthcare challenges by combining artificial intelligence, medical devices, digital health, and clinical validation frameworks within a single innovation ecosystem. Through structured access to clinical datasets, medical imaging repositories, and validation platforms at KIMS and KIDS, COIR bridges the gap between academic research, regulatory readiness, and real-world clinical adoption.

Vision & Strategic Focus

COIR MedTech is envisioned as a national and global hub for AI-enabled medical technology research and innovation, fostering responsible use of emerging technologies to improve patient outcomes and healthcare accessibility. A defining strength of COIR MedTech is its deep clinical integration with Kalinga Institute of Medical Sciences (KIMS), Kalinga Institute of Dental Sciences (KIDS), KIIT School of Public Health (KSPH).



This enables:

- Real-world clinical problem identification
- Retrospective and prospective validation studies
- Ethical, regulatory, and governance-compliant AI research
- Deployment-ready healthcare solutions

Core Focus Areas

- Artificial Intelligence in Diagnostics & Medical Imaging
- Internet of Medical Things (IoMT) & Smart Healthcare Systems
- Digital Health, Telemedicine & Remote Care
- Medical Devices, Robotics & Assistive Technologies
- Biomedical Imaging & Instrumentation
- Bioengineering, Nanomedicine & Regenerative Technologies
- Health Informatics, Policy, Ethics & Responsible AI





What COIR MedTech Offers

Research & Innovation

Clinically grounded, interdisciplinary research programs
Access to real clinical workflows, EHRs, and imaging datasets
Translational research from prototype to deployment

Training & Capacity Building

AI & healthcare technology bootcamps
Faculty and clinician upskilling programs
Short-term and long-term specialized courses

Internships & Academic Programs

Structured internships for students and researchers
Doctoral and post-doctoral research opportunities
Integrated academic-industry-clinical exposure

Consultancy & Industry Collaboration

Medical device and AI system design & validation
Industry-academia collaborative R&D
Technology transfer, IP development, & commercialization support





Academic Degree Programmes

1. B.Tech in Biomedical Engineering

**(Offered in Joint Collaboration between KIIT and AMTZ, Visakhapatnam)
(2+2 Program Structure)**

AMTZ is a premier Indian hub for medical device manufacturing and offers specialized, NSDA-approved, industry-focused biomedical engineering programs through the Indian Biomedical Skill Consortium (IBSC).

The program is designed to provide strong foundational learning during the first two years at KIIT, followed by advanced, industry-integrated training at AMTZ during the third and fourth years, ensuring hands-on exposure and real-world experience in medical device development and manufacturing.

2. Integrated PhD in Medical Technology Innovation (iPhD-MT)

The Integrated PhD in Medical Technology Innovation (iPhD-MT) is a first-of-its-kind doctoral programme that redefines traditional PhD education by embedding research, product development, and clinical translation within a single, time-optimized doctoral journey.

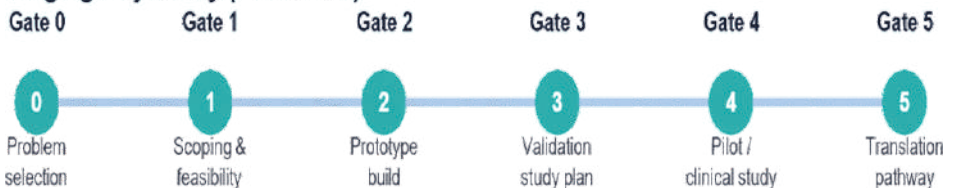
The iPhD-MT programme is built on three inseparable pillars:

1. Research Excellence – doctoral-level novelty and high-impact publications
2. Product Development – prototype/MVP design with verification & validation
3. Translation – clinical adoption, licensing, or startup pathways

Key Highlights of iPhD-MT

- Dual Mentorship Model: Engineering/Technology Supervisor + Clinical Co-Supervisor (KIMS/KIDS)
- Strong Clinical Immersion: Early and continuous exposure to real clinical workflows
- Structured Stage-Gate System (Gate 0–5): Ensures time-bound progress, quality control, and translational focus
- Specialisation Tracks
 - AI in Diagnostics & Medical Imaging
 - IoMT & Digital Health
 - Medical Devices & Robotics
 - Bioengineering & Computational Medicine
- Global & Industry Alignment: Designed for international collaboration, regulatory awareness, and industry relevance

Stage-gate journey (illustrative)



2. Post-Doctoral Fellow Programme in Medical Technology

The Post-Doctoral Fellow Programme in Medical Technology is designed to foster advanced research, innovation, and interdisciplinary collaboration in the rapidly evolving field of medical technology.



Key Highlights of PDF in MedTech

- Focuses on translational research addressing current healthcare and clinical needs
- Research areas include biomedical devices, diagnostics, medical imaging, digital health, biomaterials, and healthcare technology
- Encourages collaboration with clinicians, industry partners, and research organizations
- Supports high-quality publications, patents, and technology commercialization
- Offers access to state-of-the-art laboratories, facilities, and research infrastructure
- Provides mentorship from experienced faculty and opportunities for professional development
- Aims to develop independent researchers for careers in academia, healthcare, and the medical technology industry

Proposed Integrated Lab Clusters

1. Biomedical Sensing & IoMT Lab

Biosensors, wearable devices, physiological signal acquisition, wireless health monitoring.

2. Embedded & Edge AI Lab

Real-time signal processing, TinyML, FPGA/SoC platforms.

3. Advanced Computing & Healthcare AI Lab (ACIS)

Medical image analysis, multimodal AI, large-scale clinical data analytics, HPC, federated learning.



4. Digital Health & Clinical Analytics Lab

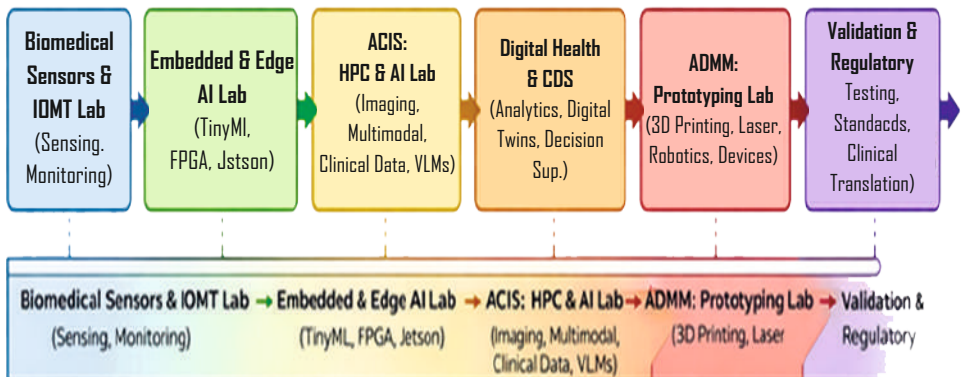
Electronic Health Records (EHRs) mining, decision support systems, predictive healthcare, explainable AI.

5. Advanced Digital Manufacturing & Medical Devices Lab (ADMM)

3D printing, laser processing, robotics, digital twin, prosthetics, implant prototyping.

6. Regulatory & Validation Lab

Safety testing, compliance, usability and reliability studies.





Who Should Apply (International & National Delegates)

- Engineering, Science, and Data Science graduates interested in healthcare innovation
- Clinicians and healthcare professionals with research and innovation aspirations
- Researchers aiming to translate AI and medical technologies into real-world impact
- Future academic leaders, startup founders, and MedTech innovators



Leadership & Core Team



Centre of Innovation &
Research in MedTech
KIIT

Chief Patron

Prof. Achyuta Samanta

Founder - KIIT, KISS, KIMS

Prof. (Dr.) Achyuta Samanta is a visionary educationist, social reformer, and global humanitarian who rose from abject poverty to create institutions that have transformed millions of lives. In 1992, with just Rs. 5,000, he founded KIIT and KISS in Bhubaneswar, driven by his belief that “education is the third eye of a child.” Today, KIIT



stands as a premier, globally recognized university with top national rankings and international accreditations, while KISS is the world’s largest fully free, fully residential institution for indigenous children, providing holistic education, nutrition, healthcare, accommodation, and skill development to tens of thousands. He also established KIMS, a 2,600-bed multi-specialty teaching hospital delivering world-class, compassionate healthcare, particularly to underserved communities.

Beyond education and healthcare, Prof. Samanta has led impactful social initiatives such as the Art of Giving movement, empowering people to spread kindness and social responsibility. A former Member of Parliament in both the Lok Sabha and Rajya Sabha, he has contributed significantly to national policy and tribal welfare. Honored with 75 honorary doctorates and numerous global awards, he remains deeply humble, living simply and dedicating his life to service, guided by faith, compassion, and the conviction that opportunity can empower even the most disadvantaged to excel.



Patrons

Prof. (Dr.) Saranjit Singh

Vice Chancellor, KIIT Deemed to be University
Professor | Fellow, Institution of Engineers (India)

Prof. (Dr.) Saranjit Singh is a distinguished academic leader and researcher with over 120 international and national publications and extensive experience in advanced manufacturing, materials engineering, and medical technology innovation. Under his leadership, COIR MedTech advances interdisciplinary, clinically validated research aligned with national and global healthcare priorities.



Prof. (Dr.) Jnyana Ranjan Mohanty

Registrar, KIIT Deemed to be University

Prof. (Dr.) Jnyana Ranjan Mohanty is the Registrar of KIIT Deemed to be University, Bhubaneswar, with over 28 years of experience in academia, research, and university administration. He joined KIIT in 1997 and has held several key leadership positions, including Associate Dean and Controller of Examinations. He earned his Ph.D. in Computer Science from Utkal University. His research interests include Queuing Theory, Computational Intelligence, Cloud Computing, and Intelligent Computing Systems. He has published extensively in reputed journals and conference proceedings, supervised Ph.D. scholars, and contributed significantly to academic leadership and research development. He is a recipient of the Best Faculty Award and is a Life Member of ISTE and ISCA.





Centre Head

Dr. Chinmay Chakraborty

Associate Professor & Head, COIR – Medical Technology
SM-IEEE | Marie Skłodowska-Curie Fellow (EU) | AICTE DPS

Dr. Chinmay Chakraborty is an internationally recognised researcher in AI-driven healthcare systems, IoMT, medical imaging, telemedicine, and health informatics. He has been consistently ranked among the Top 2% Scientists Worldwide (Stanford University, 2021–2025) in Artificial Intelligence and Image Processing. A recipient of prestigious international fellowships and national recognitions, he leads COIR-MedTech with a strong focus on clinical translation, global collaboration, and responsible AI governance.



Prof. Narinder. K. Mehra

Advisor

Prof Mehra is Honorary Emeritus scientist of the Indian council of Medical Research, and Former Dean and National chair of All India Institute of Medical Sciences, New Delhi. He is also the Honorary Advisor (R&D) for the KIIT University and KIMS, Bhubaneswar. As vice-president (international affairs) of the Indian National Science Academy (INSA), he played a key role for the S20 engagement group during the G20 Presidency of India. He is an internationally acclaimed expert in the area of Transplant Immunology and Clinical Immunogenetics and is vastly experienced in policy, education promotion and strategic planning for science. He was the main resource for preparing the National Guidelines for Stem cell research and Therapy and Guidelines for Umbilical Cord Blood banking. During the COVID-19 pandemic, he published a white paper, “COVID-19: host immunity and vaccines” and took an active part in public education.





Dr. Swati Sharma

Honorary Assistant Professor

Dr. Swati Sharma is a biomedical engineer, researcher, and technology entrepreneur with expertise in medical imaging, artificial intelligence, biomechanics, and healthcare technology. She currently serves as a Research Scientist at the Singapore Eye Research Institute (SERI), Singapore, while also serving as Co-Founder and CTO of DeepHealth Pvt. Ltd., India, and as an Honorary Assistant Professor at the Centre of Innovation & Research in Medical Technology (COIR-MedTech), KIIT Deemed to be University, Bhubaneswar, India. Her research at SERI focuses on AI-driven medical imaging and innovative ophthalmic applications. Dr. Sharma has previously worked as a Research Associate at SERI, Chief Development Officer at Hybrique Pte Ltd., Singapore, and Manager-R&D at Tata Motors Ltd., Pune. She holds a PhD in Biomedical Engineering from the National University of Singapore and an M.Tech in Design Engineering from IIT Delhi.



Associated Members

Dr. Suman Bhattacharya

Professor

Dr. Vikas Kumar Jha

Associate Professor

Dr. Vimal Kumar Shrivastava

Associate Professor

Dr. Manoj Kumar Parida

Assistant Professor

Dr. Sudhanshu Dubey

Assistant Professor

Dr. Subhanshu Sekhar Tripathy

Assistant Professor



Publications (COIR-MedTech Affiliated)

1. Soufiane BO, **Chinmay C**, Saranjit S, Mohamed AF, Neuro-Entropy-Driven Nature-Inspired Framework for Adaptive Privacy and Lightweight Security in Sensor Devices, IEEE Sensors Journal, 1-8, 2026, 10.1109/JSEN.2026.3658197
2. Yurong Y, Chunnian L, **Chinmay C**, Manisha G, Feng D, Fairness-Aware Medical Image Analysis for Consumer Electronics under Imbalanced Data , IEEE Transactions on Consumer Electronics, 1-8, 2026, 10.1109/TCE.2026.3654674
3. Sabyasachi M, Nazeer H, **Chinmay C**, Saranjit S, Satyasaran C, Pabitra M, GeoFed-Cervix: A Differential Geometry-Guided Federated and Explainable AI Framework for Early Cervical Cancer Detection on Consumer Devices, IEEE Transactions on Consumer Electronics, 1-8, 2025, 10.1109/TCE.2026.3651019
4. Jiayi W, Yan Z, **Chinmay C**, Sandeep KT, Jingmin X, Keping Y, Cell-Level Free Cervical Lesion Detection in Cytology Images via Weakly Supervised Self-Correction, IEEE Journal of Biomedical and Health Informatics (J-BHI), 1-8, 2025, doi:10.1109/JBHI.2025.3646371
5. **Chinmay C**, Soufiane BO, SQAHO-IoMT: A Post-Quantum Secure and AI-Resilient Aggregation Framework for Smart Healthcare Systems, IEEE Journal of Biomedical and Health Informatics (J-BHI), 1-8, 2025, 10.1109/JBHI.2025.3638745
6. Othman SB, **Chinmay C**, Saranjit S, and Frikha MA, Federated Learning-Enabled Digital Twins for Privacy-Preserving Cardiovascular Disease Detection in Consumer Electronics, IEEE Transactions on Consumer Electronics, 1-8, 10.1109/TCE.2025.3634581



7. Santi PM, Avik B, **Chinmay C**, Saranjit S, SDN-IoCE for Intelligent Self-Powered Gas Sensor Monitoring, IEEE Consumer Electronics Magazine, 1-6, 2025, 10.1109/MCE.2025.3628424
8. Jinhua C, **Chinmay C**, Ashok P, Yuning Q, Qibin Z, Osama A, Keping Y, A Robust Aggregation of Federated Large Language Models for Multimodal Knowledge Discovery in Computational Social Systems, IEEE Transactions on Computational Social Systems, 1-16, 2025, 10.1109/TCSS.2025.3575623
9. **Chinmay C**, Bhuvan U, Saïd M, Bio-inspired computing and Machine learning analytics for a future-oriented mental well-being, Elsevier SLAS Technology Journal, 34, 1-2, 100343, Oct., 2025, 10.1016/j.slast.2025.100343
10. **Chinmay C**, Chao H, Anh T, Houbing S., Recent Advances in Safety and Reliability for Transportation Cyber-Physical Systems, IEEE Transactions on Intelligent Transportation Systems, 26(9), 2025, 10.1109/TITS.2025.3601755
11. **Chinmay C.**, Chao H., Bhuvan U, Enhancing Consumer IoT Security with Immersive Embedded Cyber-Physical Systems, IEEE Transactions on Consumer Electronics, 1-3, 2025, 10.1109/TCE.2025.3600628
12. **Chinmay C.**, Moustafa H., Yin S., Mehrabi A., Sotelo R., GenAI Role in Consumer Devices and Services, IEEE Consumer Electronics Magazine, 14(5), 25-27, Sept. 2025, 10.1109/MCE.2025.3581157
13. **Chinmay C.**, et al., Intelligence of Social Things-enabled Cooperative Learning for Behavioral-Cultural Modeling, IEEE Transactions on Computational Social Systems, 10.1109/TCSS.2026.3653516, 2026



Books

1. Manisha G, Chinmay C, Martin M, Combining Visual Intelligence and Federated Learning in Smart Healthcare, IGI Global, 1-380, 10.4018/979-8-3693-6094-1, ISBN13: 9798369360941, Aug. 2025.
2. Chinmay C, Subhendu KP, Sayonara B, Cognitive and meta learning strategies in biomedical research and Healthcare, Elsevier, ISBN: 9780443403798, March 2026,
3. Laxmi S, Ajitha D, Chinmay C, Prabin S.M., IoT Cybersecurity Trends, Challenges, and Solutions, 1-248, , CRC Press/Taylor and Francis Group, ISBN 9781032958781, April 30, 2026
4. Manisha G, Chinmay C, Nabih J, Keping Y, Federated Intelligence in Medicine: AI-Driven Robotics for Secure and Intelligent Healthcare Systems, Elsevier, 1-250, 2026, ISBN 0443489963, 9780443489969

Honors/Awards

1. Dr. Chinmay Chakraborty, Panelist in the AI in Medicine session at the Odisha AI Summit, SOA Univ., BBSR, India, 18th Dec. 2025
2. Dr. Chinmay Chakraborty, Prof. Saranjit Singh, Best Vision Paper 15th EAI International Conference on Mobile Networks and Management 28-30 November, 2025, Chongqing, China

MoU

EICT, IIT Roorkee, India

Ho Chi Minh City University of Technology and Engineering, Vietnam

Hanoi University of Science and Technology, Vietnam

Andhra Pradesh MedTech Zone (AMTZ), Visakhapatnam

News

Dr. Chinmay Chakraborty, Coordinator, EICT IIT Roorkee, 14 Days FDP, COIR-MedTech, on AI-Driven Digital Healthcare: Integrating IoT and Big Data for Smarter Systems, 16.06.2026-29.06.2026

<https://news.kiit.ac.in/kiitnews/two-week-fdp-on-ai-driven-digital-healthcare-integrating-iot-and-big-data-for-smarter-systems/>

Contact & Collaboration

We welcome research collaboration, industry partnerships, clinical validation studies, and programme enquiries.

For any general queries, you can contact us here:

coir.medtech@kiit.ac.in

For academic collaboration, industry partnerships, and international engagement:

head.coirmedtech@kiit.ac.in

Website: <https://coir.kiit.ac.in/medtech/>

KIIT Website: www.kiit.ac.in

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Quick tips

If you are proposing a project, include the clinical problem statement and expected outcomes.

For programme queries, mention your background and preferred track.

For industry partnerships, share your timeline and validation needs.