Workshop on:
Photonics, Genomics and AI for Health

18-19 December 2025

@ Indian Institute of Technology Delhi – Abu Dhabi

About: The Workshop

Photonics plays an important role in healthcare technologies, for example, optical coherence tomography (OCT), laser surgery, and fluorescence imaging, to name a few. Photonics technologies enable non-invasive, high-resolution imaging of tissues, which is crucial for early disease detection and monitoring. The integration of photonics with AI tools can be extremely effective for Genomics technologies, accurate medical diagnostics and treatment etc.

The workshop on Photonics, Genomics and AI for Health at IIT Delhi - Abu Dhabi during 18 and 19 December 2025, serves as a kick-off meeting of multiple Indo-Norway projects which have been funded recently. This workshop will mark a significant milestone in fostering international collaboration between experts from University of Tromso, University of Inland Norway, IIT Delhi, IIT Delhi-Abu Dhabi, AIIMS New Delhi and many universities internationally. This workshop aims to bring together researchers from these institutes specializing in photonics technologies, Genomics, AMR and pathogen diagnostics and AI to share knowledge and extend further their collaborations in health care technologies. Many medical specialists, scientists and researchers in UAE and around, are participating promoting cultural and scientific exchange. These collaborative efforts could spur the growth of high-tech medical industries, attract opportune investment, and position these nations as leaders in the health sector, with potential global influence in the field.

About: Indo-Norway Collaboration projects

There is a decade long close co-operation between UiT, iNN and IIT Delhi starting from INCP 1 project granted in 2015. In 2025, the Indo-Norway co-operations kick-started three new projects “Photonics4Life”, “Photonics4Health” and “Urinary Tract Infection (UTI)-Rapid Diagnosis”, with support from Research Council Norway. Partnering Institutes include; WHO, Arctic University of Norway (UiT), University of Inland Norway (iNN), IIT Delhi, AIIMS Delhi, IIT Madras and IIT Hyderabad. The partners from India and Norway are developing innovative health technology by moving the laboratory as close as possible to patients. Health diagnostic technologies must be sensitive, portable and affordable to maximize research results. Photonics technologies, combined with AI, have proven to be promising tools in healthcare. If we are to adapt healthcare tools, moving them from the laboratory to the closest possible patient, an interdisciplinary and innovative approach is essential. The aim of ‘UTI-Diag’ project is, in reducing the burden of antimicrobial resistance. AMR is one of the critical global health-threatening issues, as also recognized by WHO, which also is a partner for the project. The project aims to develop rapid and accurate pathogen identification and antimicrobial susceptibility determination technologies which are central to managing UTIs.

About: Indian Institute of Technology Delhi – Abu Dhabi

IIT Delhi - Abu Dhabi (IITD-AD) commenced its teaching operations in January 2024. Currently, the campus offers three undergraduate, one postgraduate and PhD programs. The undergraduate degrees offered are B.Tech. in Computer Science and Engineering, Energy Engineering and Chemical Engineering. In postgraduate domain, IITD-AD offers an M.Tech. in Energy Transition and Sustainability and PhD program in Energy and Sustainability.

IIT Delhi - Abu Dhabi represents a hallmark of academic excellence, extending the prestigious legacy of the Indian Institute of Technology Delhi into the vibrant landscape of the UAE. With a strong emphasis on innovation, research, and global collaboration, the institution plays a pivotal role in fostering knowledge, nurturing exceptional talent, and shaping future leaders in engineering, technology, and related fields. The institution prioritizes several key areas, including establishing cutting-edge research facilities in crucial fields pertinent to the UAE, including artificial intelligence/machine learning, energy and sustainability, computer science, and healthcare.

Note: A focused workshop for collaboration. Participation by invitation only.

Workshop on Photonics, Genomics & AI for Health

18–19 December 2025
Indian Institute of Technology Delhi – Abu Dhabi
Venue: Lecture Hall, IIT Delhi – Abu Dhabi

18 December 2025

Welcome & Opening

Time	
09:00–09:10	**Welcome Address:** Prof. Rangan Banerjee & Prof. Shantanu Roy
09:10–09:20	**About Indo-Norway Collaboration projects:** Prof. Joby Joseph, Prof. Anurag Sharma, Prof. Balpreet Singh Ahluwalia & Prof. Rafi Ahmed

Session 1: Photonics/Electronics for Health

Time	
09:20–09:40	*Novel Imaging technologies to unravel the human immune response* **Marco Fritzsche**, Oxford University, UK
09:40–10:00	*Research on medical devices from low frequencies up to mm-waves and sub mm-waves* **Mihai Sanduleanu**, Khalifa University
10:00–10:20	*Silicon Photonics and Fiber Optics for Healthcare* **Jaimie Viegas**, Khalifa University
10:20–10:40	*Multi-modal microscopy and spectroscopy platform for life sciences and clinics* **Balpreet S Ahluwalia**, UiT, Norway
10:40–11:00	Discussion

Tea + Group Photo

10:40–11:20	Tea @Lecture Hall Corridor, Group Photo @ Reception

Session 2: Anti-microbial Resistance & Genomics

Time	
11:20–11:40	*WHO's prioritization of AMR* **Anuj Sharma**, WHO
11:40–12:00	*Nanomaterial-based bacterial detection and therapeutics* **Prashant Mishra**, IIT Delhi
12:00–12:20	*From Patient Sample to Right Antibiotic: Tech Driving Next-Gen Infection & AMR Diagnostics* **Rafi Ahmad**, iNN, Norway
12:20–12:40	*Nanoscale Bioelectronics and Biohybrids to tackle AMR* **Sagar Arya**, CATRIN, Czech Republic.

12:40–13:00	Discussion

Lunch

13:00–14:30 Lunch @ Promenade

Session 3: Industry Connect & Health-tech Innovations

Time	
14:30–14:50	*Health beyond humans* **Wael Elamin**, M42 Healthcare: Abu Dhabi
14:50–15:10	*Sequencing at speed with Oxford Nanopore Technologies* **Ashan Musafer**, Oxford Nanopore, Dubai
15:10–15:30	*Microsystems and Nanotechnologies for Environmental Monitoring and Life Sciences* **Firehun Tsige Dullo**, SINTEF, Norway
15:30–15:50	*Academic cooperation in disruptive times* **Hege Kristin Widnes**, UiT, Norway
15:50–16:10	Discussion

Tea + Cultural Visit

16:10–19:30	Tea @ Lecture hall corridor and Cultural visit to Qasr Al Watan

Workshop Dinner

20:00	@Marriott Hotel

19 December 2025

Session 4: AI, Quantum & Emerging Technologies for Health

Time	
09:00–09:20	*Nanotechnological applications against various diseases and possible AI interventions to enhance it's effectiveness* **Sakthi Kumar**, Toyo University, Japan
09:20–09:40	*AI in Drug Discovery* **Andreas Bender**, Khalifa University
09:40–10:00	*Optical parametric processes: A road to reach inaccessible spectral bands* **Ritwick Das**, IIT Delhi
10:00–10:20	*Biosensing platforms based on novel optofluidic fibers* **Georges Humbert**, CNRS France
10:20–10:40	*Super resolution Imaging and Photonic Biosensing* **Joby Joseph**, IITD - Abu Dhabi
10:40–11:00	Discussion

Tea

11:00–11:20	Tea @ Lecture hall corridor

Session 5: Bio-medical Technologies

Time	
11:20–11:40	*Tech Innovations for Cancer Detection* **Varun Surya**, AIIMS New Delhi
11:40–12:00	*From Bench at AIIMS to Brilliance in the OR* **Vivek Tandon**, AIIMS New Delhi
12:00–12:20	*3D printing for biomedical applications* **Maria Farsari**, IESL-FORTH, Greece
12:20–12:40	*Facile femtosecond pulse microstructuring of biomemetic structures for realizing biomedical meshes* **Siva Ramakrishnan**, IIT Madras

Concluding & Collaboration Discussions

12:40–13:00

Lunch @ Atrium

13:00–14:30

Cultural Visit (For those interested)

14:30	Grand Mosque & BAPS Temple