5 Days Global Initiative of Academic Networks (GIAN) course on

Health AI: Artificial Intelligence (AI) Applications in Healthcare

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Overview

Artificial intelligence (AI) is revolutionizing every aspect of human life, including human healthcare and wellbeing management. AI has prominently used technology in the design, engineering and implementation of different healthcare solutions that vary from capturing patient disease symptoms to the diagnosis process with the drug administration. An AI system can collect all possible information of patients, then match this information with the symptoms and provides intelligent assistance in figure out the possible solutions; that's why healthcare is the most inclined field by AI.

There are numerous AI applications in the healthcare field, including healthcare resource requirements forecasting, resource management, capacity planning, disease diagnosis and detection, gathering patient information, intelligent interaction between patient and doctor, disease information sensing, and care plans. We can develop AI systems to ensure the quality of care while optimizing the care cost. AI techniques and signal processing techniques can create automated diagnosis systems for various diseases based on recorded physiological signals.

The primary objectives of the course are as follows:

i) Exposing participants to the fundamentals of AI,
ii) Building in confidence and capability amongst the participants in the application of AI to in healthcare,
iii) Describe some of the biomedical problem areas which have the potential of applications of AI in healthcare
iv) Providing exposure to practical problems and their solutions through case studies and live projects in health AI,
v) Enhancing the capability of the participants to identify healthcare problems and develop their AI-based solutions.
vi) Providing background related to biomedical signals and systems with application to diagnosis of various diseases using AI.

Modules	**Lectures: 15 hours, Tutorials: 10 hours** **Duration: 05 days (10-14 January, 2022)**
You should attend if…	▪ Executives, managers, policymakers, engineers, and researchers from private and public healthcare organizations including R&D laboratories. ▪ Students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions.
Registration fees	The registration fees for taking the course is as follows: **UG & PG students: Rs. 5000** **Research scholars: Rs. 8000** **Faculty members: Rs. 10000** **Industry, R&D Organizations: Rs. 12000** **Foreigners: USD 500** **The course will be conducted in online mode.**
How to register?	Interested candidates should send an email to the course coordinator (pachori@iiti.ac.in) and register on the following link on acceptance: Link of Registration: http://gian.iiti.ac.in/register.php The payment can be made through NEFT Transfer to the following account details: Name of the Beneficiary: Registrar, Indian Institute of Technology Indore; Name of Bank: Canara Bank; Branch Code: IIT Indore Campus; Branch Beneficiary Account No. : 1476101027440; Bank MICR Code: 452015003; Bank IFS Code: CNRB0006223.

The Faculty

Dr Lalit Garg is a Lecturer in Computer Information Systems at the University of Malta, Malta. He is also an honorary lecturer at the University of Liverpool, UK. He has also worked as a researcher at the Nanyang Technological University, Singapore, and at Ulster University, UK. He received his first degree in electronics and communication engineering from the Barkatullah University, Bhopal, India, in 1999, and his postgraduate in information technology from the ABV-Indian Institute of Information Technology and Management (IIITM), Gwalior, India, in 2001. He received his PhD degree from the University of Ulster, Coleraine, UK, in 2010. He has supervised 200+ Masters' dissertations, 2 DBA and 2 PhD thesis and published 125+ high impact publications in refereed journals/conferences/books, five edited books and 22 patents. He has delivered several keynote speeches, organized/chaired international conferences, and consulted numerous public and private organizations for information systems implementation and management. His research interests are business intelligence, machine learning, data science, deep learning, cloud computing, mobile computing, Internet of Things (IoT), information systems, management science and their applications mainly in healthcare and medical domains. He participates in many EU, and local funded projects, including a one million euros Erasmus+ Capacity-Building project in Higher Education (CBHE) titled Training for Medical education via innovative eTechnology (MediTec). The University of Malta has awarded him the 2021-22 Research Excellence Award for exploring Novel Intelligent Computing Methods for healthcare requirements forecasting, allocation and management (NICE-Healthcare).

Prof. Ram Bilas Pachori received the B.E. degree with honours in Electronics and Communication Engineering from Rajiv Gandhi Technological University, Bhopal, India in 2001, the M.Tech. and Ph.D. degrees in Electrical Engineering from Indian Institute of Technology (IIT) Kanpur, Kanpur, India in 2003 and 2008, respectively. He was a Postdoctoral Fellowship Holder at Charles Delaunay Institute, University of Technology of Troyes, Troyes, France during 2007-2008. He served as an Assistant Professor at Communication Research Center, International Institute of Information Technology, Hyderabad, India during 2008-2009. He has been working as a faculty member at Department of Electrical Engineering, IIT Indore, India since 2009. During this period, he has served as an Assistant Professor (2009-2013), as an Associate Professor (2013-2017), and as a Full-Professor since 2017. He has also been active in various administrative roles in the institute. Currently, he is associated with Center for Advanced Electronics at IIT Indore. He has served as a Visiting Professor at School of Medicine, Faculty of Health and Medical Sciences, Taylor´s University, Subang Jaya, Malaysia during 2018-2019. Previously, he has worked as a Visiting Scholar at Intelligent Systems Research Center, Ulster University, Northern Ireland, UK during December 2014. His research interests are in the areas of Signal and Image Processing, Biomedical Signal Processing, Non-stationary Signal Processing, Speech Signal Processing, Brain-Computer Interfacing, Machine Learning, and Artificial Intelligence in Healthcare. He is an Associate Editor of Electronics Letters, IEEE Transactions on Neural Systems and Rehabilitation Engineering, Biomedical Signal Processing and Control journals and an Editor of IETE Technical Review journal. He is a senior member of IEEE and a Fellow of IETE and IET. He has served as member of review boards for more than 100 scientific journals. He has also served in the scientific committees of various national and international conferences. He has delivered more than 200 talks and lectures in conferences, workshops, short term courses, and academic events organized by various institutes. He has been listed in the top h-index scientists in the area of Computer Science and Electronics by Research.com website (April, 2020). He has been listed in the world's top 2 % scientists in the study carried out at Stanford University, USA (October, 2020). He has received several awards including Achievement Award (IICAI conference, 2011), Best Paper Award (ICHIT conference, 2012), Best Research Paper Awards (IIT Indore, 2015 & 2016), Premium Awards for Best Papers (IET Science, Measurement & Technology journal, 2019 & 2020), and IETE Prof. SVC Aiya Memorial Award (2021). He has supervised 14 Ph.D., 20 M.Tech., and 41 B.Tech. students for their theses and projects. He has 235 publications which include journal papers (145), conference papers (66), books (06), and book chapters (18). He has garnered around over 9300 citations with h-index of 51 (Google Scholar, October 2021). He has worked on various research projects with funding support from SERB, DST, DBT, and CSIR.

Course Co-ordinator

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