



Digital Healthcare is a hot topic today with much advances in every field and Pathology is no different from the rest of the fields. Data science is creating a huge impact in all fields including pathology. Digital Pathology, a new and promising aspect of Pathology, focuses on data generation, data management and utilisation of this data for development of algorithms that would aid in diagnosis. The input is based on information generated from digitized glass slides, also called Whole-Slide Images (WSI). The field of digital pathology is growing and has applications in diagnostic pathology. Adaption of Digital Pathology leads to achieving precise diagnoses, prognosis, and prediction of diseases. Digital Pathology is creating huge job opportunities for pathologists and data scientists in AIML field

These applications are being further developed by applying AI (Artificial Intelligence), ML(Machine Learning) and IOT (Internet of Things) technologies, a field named 'Computational Pathology'. The market for digital pathology is growing all the time. The global market was valued at \$767.6 million in 2019 and is expected to grow rapidly, at a CAGR of 11.8% between now and 2027 (<https://www.news-medical.net/life-sciences/Benefits-of-Digital-Pathology.aspx>)

Pathologists traditionally view glass slides under a microscope to make a diagnosis based on cellular and architectural details. The glass slides are limited by easy loss, breakage and involves logistics when have to be shared. However, when slides are digitized and WSIs are created, they can be shared through a network access and can be applied for computer algorithms. These Algorithms provide an objective evidence of a diagnosis such as measuring depth of invasion, differentiating micrometastasis and macrometastasis, counting mitoses, classifying the tumor grades etc. This has the potential to reduce human error and improve accuracy of diagnoses. Digital slides can be easily shared, increasing the potential for data usage in biomarker research with education as well as in consultations between expert pathologists.

Further, creating vast amounts of 'unlocked' data, pathologists can view it within the context of other images, results and clinical information. The long-term benefits of a curated digital pathology image repository range from enabling improved clinical diagnostics to aiding in the development of future predictive analytics – ultimately helping to further personalize and improve patient care.

This course is aimed at training Practicing Pathologists, Histology Technicians, Cytology Technicians, Digital Scanning Technicians, Pathology Residents, Pathology Assistants, Research Scientists, Educators, Data Scientists, Individuals associated with or responsible for Laboratory Informatics, or anyone who is interested in or performing any aspect of digital pathology, WSI, image analysis, and health care data management.

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The many advantages of adopting Digital Pathology technology are:

- Digitize workflows with improved efficiency
- Practice of Precision Medicine
- Accurate diagnosis and staging – 'First time right diagnosis'
- Better patient outcomes
- National and International Collaboration for expert opinions – Reduce Turn around time and logistics
- Base for AIML algorithms – Unsupervised learning
- Base for Radio-Genomics
- Reduces long-term costs
- Reduction in errors
- Unify patient data

PATRON



Dr. Vijay Chandru

Dr Vijay Chandru Co-Founder Strand in 2000 with Dr Ramesh Hariharan as a spin-off from the prestigious Indian Institute of Science (IISc), Bangalore. He is an academic entrepreneur recognized as a 'Technology Pioneer' by the World Economic Forum in 2006. His academic career has spanned over two decades at Purdue University and IISc. Dr Chandru is the recipient of several awards and honours: Fellow of Indian Academy of Sciences (1996), MCIT Dewang Mehta Award for Innovation in IT (2001), UGC Hari Om Trust award for "Science and Society" (2003), the President's Medal of INFORMS in 2006, distinguished Alumni award by the MIT India Program in 2007, and was recognized as the Biospectrum Biotech Entrepreneur of 2007. Dr Chandru was the elected Honorary President (2009-2012) of the Association of Biotech Led Enterprises (ABLE), the apex trade body that represents the Indian biotech industry. Dr Chandru also serves as an advisor to the Karnataka State Council on Science & Technology and on the Atal Innovation Mission at the National Institution for Transforming India (NITI AAYOG) in New Delhi. He holds a PhD from MIT.

FACULTY

Dr. Veena R, consultant pathologist and Head of Histopathology, at Triesta Sciences, HCG Hospitals, Bangalore. She has over 20 years of experience in various fields of Pathology – Surgical pathology, Oncopathology, Digital Pathology, immunohistochemistry and flow cytometry. Her keen interest is in Digital pathology for surgical Oncopathology. Her fields of expertise are Uro-Oncopathology, Female reproductive organ Pathology, Head and Neck Pathology and GI pathology. She also heads Digital Pathology at HCG as the project In-charge. She is instrumental in deployment of Digital pathology in HCG network. She is the academic in-charge in Pathology and has been guide for many DNB and Fellowship students in Oncopathology. She has been the organizing secretary for several CMEs in Pathology and digital pathology, for Pathologists and Lab Technicians. She has conducted webinars in pathology. She's an active member of MDTs and tumor board meetings. She has had many original articles and case reports published in journals of repute. She is involved in several clinical trails, some of which are on Artificial intelligence and Machine Learning in Pathology and Healthcare. She is an empaneled NABL Lead assessor and has conducted over 60 NABL assessments. Dr. Veena is a Sigma green belt holder from the Indian Institute of Technology (IIT), Delhi. She also holds a Post graduate certificate course on Artificial Intelligence for leaders from University of Texas. She's been actively involved in NABL and CAP accreditation for her laboratory, as quality standards. She holds a MD in Pathology from Mysore Medical College (2001).



Dr. Veena R
Course Director



Dr Bakul Gohel

Bakul Gohel is an assistant professor at Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT), Gandhinagar, since 2018. He completed his Ph.D. in the field of bio and brain engineering at Korea Advanced Institute of Technology and Science (KAIST), South Korea, in 2015. He received his master (M.Tech.) degree in the field of information technology (Spec. Bio-Informatics) from IIIT-Allahabad and his MBBS (Bachelor of Medicine and Bachelor of Surgery) degree from government medical college, Surat, India. Prior to joining DA-IICT, he was a researcher at Korea Research Institute of Science and Standards, South Korea, from 2015. His current research interest lies in the field of biomedical signal processing and analysis, brain-computer interaction/interface, cognitive computing and data analysis with the machine learning approach.



Dr Sandeep Rao

Dr. Sandeep Rao is consultant pathologist and head of Hematopathology, at Triests Life Sciences – HCG Hospitals, Bangalore. He has over 15 years of experience in various fields of hematopathology including flow cytometry, immunohistochemistry, molecular pathology and cytogenetics. He holds MD pathology and DM hematopathology degrees from PGIMER Chandigarh and was awarded the merit of first order. His special interests include minimal residual analysis for various hematological malignancies, digital pathology and application of artificial intelligence to hematology. He has various publications and has contributed to chapters in hematology books. He is an active participant in various online pathology platforms. He has been primary investigator for various projects including the FDA validation study for AI100 Sigtuple which is an artificial intelligence and digital pathology platform for hematology.

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Learning Objectives

The objective of the course is to completely familiarize the learner with all aspects of Digital Pathology, including workflows, equipment, protocols, regulations, and software.

2

Learning Outcomes

After completing the course, the Participant can confidently embark on projects relating digitizing pathology laboratories and lead Digital and computational Pathology initiatives.

3

Learning Methodologies

- Online Lectures (pre-recorded and live)
- Online Live Interactive Sessions
- Learning Materials to be made available through Learning Management System (includes PPTs, Notes, Further Reading, Videos etc.)

4

Course Contents

Module 1: An Introduction to the evolution of Digital Pathology

Module 2: Basics of the Technology

Module 3: Use Cases for Digital Pathology

Module 4: Selecting and Implementing a Digital Pathology Solution

Module 5: Workflow software

Module 6: Workflow Considerations & Best Practice Standards

Module 7: Image Analysis and introduction to Computational Pathology

Module 8: Data Management

Module 9: Regulatory Requirements & Validations

Module 10: Concluding Session

Module 11: Concept of Digitization in Hematology

Module 12: Used cases and Haematology workflow

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Course Duration

12 Sessions of 1 HR each (all online)

**OFFLINE
1 Day**

**HURRY
REGISTER NOW !**

Contact Details

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