NIKHIL CHERIAN KURIAN

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EDUCATION

Indian Institute of Technology Bombay, *Mumbai, India* Jan '17 - Present
PhD in Electrical Engineering (Supervisor *Prof. Amit Sethi*)
Title of thesis: *Robust and Hierarchical classification of Histopathology Images*

Indian Institute of Technology Gandhinagar, *Gandhinagar, India* July '14 - July '16
M.Tech in Electrical Engineering (Supervisor *Prof. Nithin V. George*)
Title of thesis: *Robust adaptive filter design: An information theoretic learning approach.*

Govt Rajiv Gandhi Institute of Technology, *Kottayam, India* July '09 - July '13
BTech in Electronics and Communication Engineering

RESEARCH INTERESTS

Deep learning, Robust Supervised Learning, Cancer Image Analytics, Computational Pathology, Conventional Medical Image Analysis and Signal Processing.

PUBLICATIONS

- **Nikhil Cherian Kurian**, Amit Sethi, Anil Reddy Konduru, Abhishek Mahajan, and Swapnil Ulhas Rane. "A 2021 update on cancer image analytics with deep learning." Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery (2021): e1410.
- **Nikhil Cherian Kurian**, Pragati Shuddhodhan Meshram, Abhijeet Patil, Sunil Patel, and Amit Sethi. "Sample Specific Generalized Cross Entropy for Robust Histology Image Classification." In 2021 IEEE 18th International Symposium on Biomedical Imaging (ISBI), pp. 1934-1938. IEEE, 2021.
- Anand, Deepak, **Nikhil Cherian Kurian**, Shubham Dhage, Neeraj Kumar, Swapnil Rane, Peter H. Gann, and Amit Sethi. "Deep learning to estimate human epidermal growth factor receptor 2 status from hematoxylin and eosin-stained breast tissue images." Journal of Pathology Informatics 11 (2020).
- Anita Grigoriadis, **Nikhil Cherian Kurian**, Suman, Thomas Hardiman, *et.al* **Assessments of cancer-free lymph nodes for the prediction of disease progression**, *ESMO MAP, London*, Sep 2019
- Viraf Patrawala, **Nikhil Cherian Kurian**, Amit Sethi, **Improving Histopathology Classification using Learnable Preprocessing**, *IEEE TENCON*, Jun 2019
- **Nikhil Cherian Kurian**, Kashyap Patel, Nithin V. George, **Robust active noise control:An information theoretic learning approach.**, *Applied Acoustics 117 (2017): 180-184.*
- Kashyap Patel, **Nikhil Cherian Kurian**,Nithin V. George, **Time frequency analysis: A sparse S transform approach**, *ISPACS 2016, Phuket, Thailand,* Oct. 2016
- Wilson, Bibin, **Nikhil Cherian Kurian**, Anand Singh, and Amit Sethi. "Satellite-Derived Bathymetry Using Deep Convolutional Neural Network." In IGARSS 2020-2020 IEEE International Geoscience and Remote Sensing Symposium, pp. 2280-2283. IEEE.
- Verma, Ruchika, Neeraj Kumar, Abhijeet Patil, **Nikhil Cherian Kurian**, Swapnil Rane, ..&Amit Sethi. "Multi-organ Nuclei Segmentation and Classification Challenge 2020." IEEE Transactions on Medical Imaging (Accepted)
- Abhijeet Patil, Md. Talha, Aniket Bhatia,**Nikhil Cherian Kurian**, Sammed Mangale, Sunil Patel, & Amit Sethi Fast, Self Supervised, Fully Convolutional Color Normalization of H&E Stained Images. IEEE ISBI 2021, virtual conference
- Verghese, Gregory, Anita Grigoriadis, Amit Sethi, Amit Lohan, **Nikhil Cherian Kurian**, Swati Meena, Harry Chinque et al. "Abstract PO-014: Deep learning-based segmentation accurately captures histological features in cancer-free lymph nodes of breast cancer patients." (2021): PO-014.

TALKS AND PEDAGOGICAL ACTIVITIES

- Invited Speaker at *Nvidia GTC 2021* on the topic "Robust loss functions on deep histopathology image classification".

- Co-organizer of Mult-organ nuclei segmentation and classification challenge , *MoNuSAC 2020*, organized as an official satellite event of ISBI 2020.
- Co-Instructor and Co-Organizer at *Shala2020:* Online summer school on Data Sciences and Machine learning.
- Workshop Speaker at 2nd Indo-UK Cancer informatics workshop at ACTREC, Navi-Mumbai, India, November 2019.
- Invited speaker at "Applications of AI in Healthcare" workshop, AICTE Sponsored Faculty Development Program(FDP), on the topic "The confluence of deep learning in histopathology images", Virtual Program 2021
- **Teaching Assistantship**
  - Excellence in Teaching assistantship for EE 782: Advanced Machine Learning from the Department of Electrical Engineering, IIT Bombay, 2020-21.
  - Teaching Experience (TA) :
    * Advanced Machine learning * Advanced Signal Processing * Information Theory * Introduction to Machine Learning * Image Processing * Digital Signal Processing Lab * Artificial Neural Networks
- **Collaboratory Research**
  - Nvidia Systems Mumbai * University of Illinois, Chicago * King's College, London * Tata Memorial Centre, Mumbai

POSITIONS OF RESPONSIBILITY

- P.G. core Member Electrical Department at IIT Bombay , 2018-19
- System Administrator: Medical Imaging Deep learning and Artificial intelligence Lab (MeDAL) IIT Bombay, 2018-Present
- Secretary, IEEE RIT Student Chapter, Kerala Section 2012-13
- Technical Coordinator, IEEE RIT Student Chapter, Kerala Section 2011-12

RELEVANT COURSE WORK

Relavant Courses from IIT Bombay:

* EE 708:Information Theory
* EE 678:Wavelets
* EE 610: Image Processing
* CS 754: Adaptive Signal Processing
* CS 754: Advacned Image Processing
* CS 726: Advacned Machine Learning
* CS 736: Medical Image Computing
* EE 769: Introduction to Machine Learning

Relavant Courses from IIT Gandhinagar:

* EE 612:Artificial Intelligence
* EE 623:Fundamentals of Artificial Neural Network
* EE 609: Advanced Signal processing
* CS 645: 3D Computer Vision
* EE 615: Nature Inspired Computing
* MA 601: Mathematical models in Engineering

SKILLS

- **Languages:** Python * C * C++ * Java * Matlab * Octave
- **Libraries and Tools:** * PyTorch * TensorFlow * Keras * Scikit-Learn * Pandas * OpenCV * NumPy
- **Miscellaneous:** * Shell Scripting * Dockers * Git
- **Organisational:** Various technical programs, Secretary IEEE RIT Student Chapter, Kerala Section

REFERENCES

Peter H Gann	**Amit Sethi**	**Nithin V. George**
Academic Director of Research	Associate Professor	Associate Professor
College of Medicine	Electrical Engineering	Electrical Engineering
University of Illinois, Chicago	IIT Bombay	IIT Gandhinagar
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