

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
Masters 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 Meshram, Abhijeet Patil, Sunil Patel, and Amit Sethi. "Sample specific generalized cross entropy for robust histology image classification", IEEE ISBI 2021, Virtual Conference
- 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

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Amit Sethi

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Electrical Engineering
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Nithin V. George

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