DEEPAK ANAND

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EDUCATION

Indian Institute of Technology Bombay, *Mumbai, India* — Jan '14 - Present
PhD in Elcetrical Engineering (Guide *Prof. Amit Sethi*) — GPA: **8.34/10**

Dr. M.G.R. Educational and Research Insitute, *Chennai, India* — July '08 - July '12
BTech in Electronics and Communication Engineering — GPA: **9.08/10**

RESEARCH INTERESTS

Deep Learning, Machine Learning, Computer Vision, Diagnosis in Pathology, Genomics and Radiology

PROFESSIONAL EXPERIENCE

- **PathPresenter** — New York, USA
  Deep learning & AI Consultant — *March '19 - Ongoing*
  Design of a commercial web-based platform for digital pathology compatible with FDA standards
- **SkinAI Health Solutions Private Limited** — New Delhi, IN
  Deep learning & AI Consultant — *Sep '19 - Ongoing*
  Integrate AI/ML-based models for predictive analysis of dermatology diseases with 100+ conditions
- **FlipFake** — Ghaziabad, IN
  Deep learning & AI Consultant — *Sep '19 - Ongoing*
  Building easily deployable screening and verification schemes for identifying counterfeiters or fake products
- **Griffyn Robotech Private Limited** — Pune, IN
  Deep learning & AI Consultant — *March '19 - Ongoing*
  Develop AI modules for cosmetic evaluation of the surfaces for better evaluation of the used products
- **Indian Institute of Technology Hyderabad** — Hyderabad, IN
  Project Assistant — *Jan '13 - Dec '13*
  Synthesized lead-free piezoelectric materials for vibration sensors and the corresponding driver circuits

PEDAGOGICAL ACHIEVEMENTS

- **Research Grants & Awards**
  - **Facebook's Ethics in AI Research Awards** *(Principal Investigator: Prof Amit Sethi)*
  - **TCTD Seed Grant Proposal** *(Principal Investigator: Prof Amit Sethi)*
  - **Runner-up prize of INR 100,000 Intel Python HackFury^2**
  - **Best Paper Award IEEE WIECON 2019**
  - **IIT Bombay's PG Passing-out Color Awards (Sports) 2019**
- **Paper-review and Workshops**
  - Organized the Multi-organ Nucleus Segmentation challenge **(MoNuSeg)** at **MICCAI 2018**
  - Reviewed **six** research papers from **MICCAI 2018** and **one** research paper from **CDC 2019**
- **Thesis Supervision**
  - **10+ Master's and Dual-Degree thesis** collaboration and supervision with Prof. Amit Sethi
  - **10+ Supervised Research Exposition** (EE451) supervision and guidance with Prof. Amit Sethi
- **Talks & Tutorials**
  - ML hands-on session at **IoT Fundamentals and Case Studies** (CEP) at IIT Bombay (Sep 2019)
  - SRG talk on **Making Machines Learn** at Electrical Engineering, IIT Bombay (Aug 2019)
  - ML hands-on session at **Fundamentals of IoT Design** (CEP) at IIT Bombay (Jul 2019)
  - **Broad applications of Deep Learning in Electrical Engineering** at IIT Bombay (May 2019)
  - Poster presentation on **Oral-cancer screening app**, at **TCTD Symposium**, IIT Bombay (Jan 2019)
  - **Deep Learning in Healthcare**, at Nvidia's **"The Convergence of HPC with AI"** (Dec 2018)
- **Teaching Assistantship:** Introduction to ML ∗ Image Processing ∗ Matrix Computations and Algebra
- **Collaborations:** UIC, Chicago ∗ CWRU, Ohio ∗ King's College, London ∗ TMH, Mumbai ∗ JHU, USA
- **Skills:** Python ∗ PyTorch ∗ fast.ai ∗ TensorFlow ∗ Keras ∗ Scikit-Learn ∗ Pandas ∗ NumPy ∗ Matplotlib

PUBLICATIONS

- **Published & Accepted**
  - Deepak Anand, Shrey Gadiya, Amit Sethi, **Histographs: Graphs in Histopathology**, *SPIE Medical Imaging Conference*, Oct 2019
  - Deepak Anand, Yaman Dang, Amit Sethi, **Pixel-wise Segmentation of Right Ventricle of Heart**, *IEEE TENCON*, Jun 2019
  - Deepak Anand, Goutham Ramakrishnan, Amit Sethi, **Fast GPU-Enabled Color Normalization for Digital Pathology**, *IEEE IWSSIP*, Croatia, Apr 2019
  - Hrushikesh Loya, Deepak Anand, Pranav Poduval, Neeraj Kumar, Amit Sethi, **A Bayesian framework to quantify survival uncertainty**, *ESMO MAP, London*, Sep 2019
  - Shubham Dhage, Deepak Anand, Neeraj Kumar, Peter H. Gann, and Amit Sethi, **Abstract P4-02-11: Computer vision detects morphological correlates of HER2 positive breast cancer in H&E stained histological images**, *SABCS, American Association for Cancer Research*, Jan 2019
  - Aditya Golatkar, Deepak Anand, Amit Sethi, **Classification of Breast Cancer Histology using Deep Learning**, *ICIAR*, May 2018
  - Ameer K. Mulla, Deepak Anand, Debraj Chakraborty, Madhu N. Belur, **Leader Selection for Minimum-Time Consensus in Multi-Agent Networks**, *IEEE CDC, Melbourne*, Dec 2017
  - Neeraj Kumar, Ruchika Verma, Deepak Anand, et.al., Amit Sethi, **A Multi-organ Nucleus Segmentation Challenge**, *IEEE TMI*, Oct 2019
  - Abhijeet Patil, Swati Meena, Dipesh Tamboli, Deepak Anand, Amit Sethi, **Breast Cancer Histopathology Image Classification and Localization using Multiple Instance Learning**, IEEE WIECON, Nov 2019
- **Under review**
  - Deepak Anand, Darshan Tank, Harshvardhan Tiberwal, Amit Sethi, **Robustness of Transfer Learning versus Self-supervised Learning for Low Sample Problems**, *IEEE ISBI*, Oct 2019
  - Deepak Anand, Anil Panwar, Amit Sethi, **Graph Guided Gleason Grading in Prostate Cancer** *IEEE ISBI*, Oct 2019
  - Deepak Anand, Gaurav Patel, Yaman Dang, Amit Sethi, **Switching Loss for Class Imbalanced Medical Image Segmentation**, *SPIE Journal of Medical Imaging*, Sep 2019
  - Deepak Anand, Kumar Yashashwi, Amit Sethi, Swapnil Rane, **Automated BRAF Mutation Prediction from H&E Images in Thyroid Cancer**, *ASCO CCI*, Sep 2019
  - Deepak Anand, Nikhil Cherian, Shubham Dhage, Amit Sethi, **Automated HER2 Mutation Prediction from H&E Images in Breast Cancer**, *JPI*, Sep 2019
  - Deepak Anand, Shrey Gadiya, Amit Sethi, **Graph Convolutional Networks from the Ground Up**, *Pattern Recognition Letters*, Jul 2019
- **Under preparation**
  - Deepak Anand, Avineil Jain, Amit Sethi, **Self-supervised Segmentation using Hybrid Loss in Radiology**
  - Deepak Anand, Abhijeet Patil, Nitesh Kumar, Amit Sethi, **Self-supervised Learning in Histopathology Images via Compression**
  - Deepak Anand, Hrushikesh Loya, Kariyappa Singadi, Neeraj Kumar, Amit Sethi, **Analysing Intra-tumoral Heterogeneity in Breast Cancer**
  - Pallavi Paliwal, Deepak Anand, Debasattam Pal, Salabh Gupta, **Stability Analysis for Fast Settling Switched DPLL**
  - Yashashwi Kumar, Deepak Anand, Sibi Raj B. Pillai, Prasanna Chaporkar, and K. Ganesh **MIST: A Novel Training Strategy for Low-latency Scalable Neural Net Decoders**, *arXiv, May 2019*

REFERENCES

Amit Sethi	**Subhasis Chaudhuri**	**Swapnil Rane**
Associate Professor	Director	Assistant Professor (Pathology)
Electrical Engineering, IIT Bombay	IIT Bombay	Tata Memorial Hospital, Mumbai
asethi@iitb.ac.in	sc@ee.iitb.ac.in	raneswapnil82@gmail.com