

# Ronak Dedhiya

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## About Me

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*I am an experienced Machine Learning and Deep Learning researcher with over 8 years of experience in developing and deploying end-to-end AI solutions in challenging, data-scarce environments. Strong academic foundation with a Master's thesis focused on generating 3D models from minimal data, coupled with multiple publications. Adept at working in startup environments, leading projects from concept to production with cloud and on-premise deployments.*

## Education

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### Master of Technology in Data Science

Indian Institute of Science, Bangalore

Computational and Data Science (CDS) Department

Thesis: *Generating 3D Models from 2D Images Using Deep Learning*

**August 2021 – April 2024**

CGPA:8.90/10

### Bachelor of Technology

Vivekanand Education Society Institute of Technology

Electronics & Telecommunication

**August 2012 – May 2016**

CGPA:8.81/10

## Experience

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### Machine Learning Researcher

Niramai Health Analytix | March 2019 - Present

- Led AI-driven **Onchocerciasis Detection** project funded by the Bill & Melinda Gates Foundation, covering the full product lifecycle from data acquisition to clinical deployment.
  - Developed innovative AI algorithms for detecting distinguishing features in thermal images.
  - Published 2 papers in top-tier conferences, advancing medical AI research.
- Spearheaded **Full Body Thermal Imaging projects** to enable early diagnosis through advanced image analysis tools, deployed on AWS/GCP platforms.
- Engineered **Longitudinal Medical Image Analysis** algorithms to track patient treatment progress over time.
- Deployed scalable AI/ML models using **Docker** and **Kubernetes**, ensuring robustness in production.

### Machine Learning Engineer

Aitoelabs - AiSight Video Analytics | June 2018 – Feb 2019

- Designed and optimized a high-performance, multi-threaded C++ application for real-time deep learning video analysis, improving detection accuracy for human tracking, loitering, masked face detection and unusual activity detection.
- Improved application reliability by identifying and resolving frequent bugs, adding new features, and optimizing resource usage to increase efficiency.

### Software Engineer

Atos India Pvt. Ltd | Feb 2017 – June 2018

- Acquired skills in Linux, Java, web development, and cloud hosting through rigorous training. and leveraged these skills to develop proof-of-concept projects using AI/ML technologies for Atos internal tools.
- Collaborated with a focused group to develop and deploy machine learning models for solar plate defect detection using drones, crack detection for windmills, and to leverage cloud and edge computing.

## Research Publications

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- *Evaluation of Non-Invasive Thermal Imaging for Detection of Viability of Onchocerciasis Worms* IEEE EMBC, 2022.
- *Non-invasive Thermal Imaging for Estimation of the Fecundity of Live Female Onchocerca Worms* MICCAI, 2022.
- *3D-BreastNet: A Self-supervised Deep Learning Network for 3D Breast Surface Reconstruction* MICCAI, 2023.
- *Thermal Radiomics for Early Detection of Diabetic Foot Ulcers Using Infrared Thermography* [To be published in MICCAI 2024]
- *3D Breast Surface Reconstruction Using 2D Thermal Images* [MTech Thesis] [Under IPR] [Yet to be released].

## Technical Strengths

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- Skills: ML/DL, DotNet Desktop Applications, Cloud DevOps
- Programming Languages: Python, C++, Java, C#
- Deep Learning Frameworks: TensorFlow, PyTorch, Keras
- Big Data Tools: Hadoop, Spark
- Cloud Platforms: AWS, Google Cloud, Microsoft Azure

## Projects

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- Video Blur Detection
- Qualitative assessment of learned latent factors of basic VAE, conditional VAE in conjugation with  $\beta$  - VAE
- Training MOCO, Transformers, Domain-Adaptive, self-supervised, Diffusions models, etc
- Spark Data Analysis on YouTube trending videos
- Sample Efficient Actor-Critic with Experience Replay
- Learning Single-View & Multiple-View 3D Object Reconstruction

## Courses

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- Deep Learning Specialization - Coursera
- Mathematics for Machine Learning - Imperial College of London (Coursera)
- Advanced Deep Representation Learning
- Reinforcement Learning
- Linear and Non-Linear optimization
- Data Engineering at scale

## Achievements

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- Placed in top 14% in RSNA Pneumonia Detection Kaggle challenge
- Placed in top 3% in Digit Recognition Challenge using One-Shot Learning
- Winner at Samsung SMS Classification Hackathon
- Placed in top 5% in "Predict the Happiness" Hackerearth Challenge
- Secured AIR 1232 in GATE 2017

## Honors & Awards

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- Received accolades at Niramai for Best Performance in team.
- Received accolades at Atos for Best Performance in team.
- Received Best Debut Award at Atos.
- Won 2nd Consolation Prize for paper presented on Cognitive Radio Networks.
- Awarded with Narotam Sekhsaria Foundation Scholarship