Maulik Pandya



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Data Scientist

# PROFILE SUMMARY

* Result oriented professional with 9+ years of industrial experience in the ﬁeld of Deep Learning, Machine Learning, and Image Processing.
* Received "**Team Up to Win**" award during Philips annual award ceremony 2020 by head of Philips Innovation Campus, India.
* Secured first rank at winter school on Deep Learning for Visual Computing 2017, organized by IIT Kharagpur.
* Experience in agile based project management, developing and deployment of projects related to AI/ML to product platforms.
* Actively involved in discussion with stack-holders and BU leaders for prototyping various research projects.
* Experience in Ideation (Patent Filing), Need Seeking, Solution Roadmap Creation, Coaching & Mentoring. Ability to learn new technologies quickly and good team player.

# Technical Skills

* Python (numpy, pandas, scikit-learn), MATLAB, basics of C/C++
* OpenCV, TensorFlow, Keras, OpenVino
* MLOPS, GAN, LLM, Diffusion Models, MONAI Framework
* Pycharm, Jupyter notebook, Visual studio
* Exploring AWS and Sagemaker

# WORK EXPERIENCE

**Philips, Research Department,** Bangalore, India

Lead Data Scientist *June 2018 – Present*

AI based LI-RADS

* For HCC (hepatocellular carcinoma) detection, developed deep learning based medical image analysis tool for liver and lesion segmentation on CT and MRI.
* Developed LI-RADS characterization and scoring using ML based model training by extracting hand crafted features (patent filled).
* Developed solution is integrated to Philips product & internal platform 1) VITAMIN and

2) intellispace discovery ([product link](https://www.philips.co.in/healthcare/product/HC881015/intellispace-discovery)) 3) Intellispace portal ([product link](https://www.usa.philips.com/healthcare/product/HC881072/intellispace-portal-advanced-visualization-solution)) and deployed at multiple sites.

Lung Nodule Characterization

* As a part of public private partnership with SDAIA ([press link](https://www.philips.sa/en/a-w/about/news/archive/standard/news/press/2021/20210802-sdaia-and-philips-partner-to-drive-ai-artificial-intelligence-in-saudi-arabia-healthcare-system.html)), developed AI based pipeline to detect lung nodule in CT scan and characterize them based on severity.
* Also trained SDAIA data scientists, as a part of scientific exchange program on AI in healthcare.

Fast brain stroke detection

* To perform fast brain Hemorrhagic stroke detection, developed DL based classification on MIP image generated from multi point view.
* Gradcam++ response is used to locate Hemorrhage in 3D volume along with extension of pipeline for CBCT data for clinical workflow.



Wearable Ultrasound for HDM

* Involved in development of Ultrasound based non-invasive patient vital monitoring.
* Developed module for real time artery identification, pulsatile artery diameter extraction, velocity profiling and blood flow calculation from ultrasound images.

**Continental AG, Advance Engineering Group,** Bangalore, India

Senior ML Engineer (*Nov 2016 – June 2018*)

* Active involvement in development of Machine Learning based object detection framework. Developed deep learning based real time automotive applications using various region proposal architectures.

**HCL Tech, Imaging Tech Lab**, Bangalore, India

Member Technical Staff (*May 2015 – Nov 2016*)

* Developed driver authentication system, to confirm and give access to registered car users using facial biometric as an identity.
* As a part of departure warning system, I developed lane marker curve fitting tracking them using Kalman filter and adaptive ROI selection based on confidence analysis.

**TCS**, Pune, India

Assistant System Engineer (*Sept 2013 – May 2015*)

* As a part of multi-camera based panoramic surveillance system, developed system to detect and track objects from 360-degree panoramic surveillance image. I mainly focused on, developing image demosaicing and pre-processing pipeline and model for viewpoint stabilization using vehicle INS data.

# PATENTS & PUBLICATIONS

* Analyzing liver lesions in medical images, WO2023139086A1.
* Training a model to perform a task on medical data, EP3937084A1, WO2022008630A1.
* Selecting a training dataset with which to train a model, EP3940597A1, WO2022013264A1.
* System and Method for Continuous Learning for Medical Image Segmentation Algorithms, WO2023104464
* Managing a model trained using a machine learning process, WO2023073092A1.
* Systems and methods for identifying a vessel from ultrasound data, EP3928709A4, WO2021259713A1.
* Ultrasound data processor, EP3967237A1, WO2022013279A1.
* Method to find Optimal Color and Power Doppler Settings for Ultrasound based Flow Measurements, patent filed on Jan 2023.
* Hybrid AI based stroke characterization with explainable model, Journal of the Neurological Sciences, 2019, vol. 405, pages 162-163

# EDUCATION

**Master of Technology** 2011 - 2013

* **Specialization**: Machine Intelligence
* **University:** DA-IICT, India
* **Grade**: 8.02/10 (CPI)

**Bachelor of Engineering** 2007 - 2011

* **Specialization**: Electronics & Communication
* **University:** Sardar Patel University, India
* **Grade**: 8.4/10 (CPI)