

Viral Thakar

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About

I am an aspiring Machine Learning Researcher working towards development and improvement of core AI and machine learning algorithms for computer vision and natural language processing. With a background in both research and applied engineering, my current work focuses mainly on unsupervised domain adaptation, self-supervised learning and one-shot learning. I explore these learning techniques using generative models, graph neural networks, recurrent neural networks and convolutional neural networks. I have experience working with structured and non-structured data as well as euclidean and non-euclidean data. I also contribute to writing research proposals and pragmatic development directions to build multidisciplinary AI-based solutions.

EDUCATION

Master of Technology August 2011 - May 2013
Department of Electronics and Communication Engineering
CHARUSAT, Anand, India.
Supervisor : Dr Sharman K Hadia

Bachelor of Engineering May 2007 - May 2011
Department of Electronics and Communication Engineering
Saurashtra University, Rajkot, India.

TECHNOLOGY SKILLS

Programming Languages: Python, C++ and JavaScript.
ML Frameworks: Tensorflow, Keras, Pytorch, and OpenCV.
Infrastructure: Sagemaker, Docker, TensorRT, TFServing, and Flask.
Collaboration: Git, CI-CD, Jira, Confluence
Embedded Boards: NVIDIA Jetson Series, Raspberry Pi, Arduino

EXPERIENCE

Senior Machine Learning Engineer May 2021 - Present
Autodesk, Toronto, ON

Head of Research Jan 2020 - Jul 2021
Dataperformers, Montreal, QC

Deep Learning Researcher Jun 2018 - Dec 2019
Dataperformers, Montreal, QC

Deep Learning Researcher - Contract Sep 2016 - May 2018
Dataperformers, Montreal, QC

Deep Learning Researcher Sep 2016 - Oct 2018
Indus.ai, Thornhill, ON

Assistant Professor Jun 2012 - Apr 2016
Atmiya Institute of Technology and Science, Gujarat, India

PUBLICATIONS

- Thakar, V., Saini, H., Ahmed, W., Soltani, M.M., Aly, A. and Yu, J.Y., 2018, September. Efficient Single-Shot Multibox Detector for Construction Site Monitoring. In 2018 IEEE International Smart Cities Conference (ISC2) (pp. 1-6). IEEE.
- Thakar, V., Ahmed, W., Soltani, M.M. and Yu, J.Y., 2018, June. Ensemble-based Adaptive Single-shot Multi-box Detector. In 2018 International Symposium on Networks, Computers and Communications (ISNCC) (pp. 1-6). IEEE.
- Thakar, V.B., Desai, C.B. and Hadia, S.K., 2012. Performance evaluation & augmentation of LEACH using a novel clustering hierarchy. International Journal of Darshan Institute on Engineering Research & Emerging Technologies, 1(1).
- Thakar, V.B. and Hadia, S.K., 2013, March. An adaptive novel feature based approach for automatic video shot boundary detection. In Intelligent Systems and Signal Processing (ISSP), 2013 International Conference on (pp. 145-149). IEEE.

APPLIED PROJECTS

- **Geometric Deep Learning**
 - *Self Supervised Learning for Point Cloud Classification using Graph Convolutional Networks.*
 - *Point Cloud Classification and Segmentation using Graph Convolutional Networks.*
 - *Point Cloud Classification and Segmentation using PointNet.*
- **Computer Vision for Visual Inspection**
 - *Instance Segmentation using UNET : Applied for Manufacturing Defect Segmentation.*
 - *Instance Segmentation using Convolutional Recurrent Neural Network based UNET Architecture : Applied for Manufacturing Defect Segmentation in Real Time.*
 - *One Shot Learning with Siamese Network : Applied for Manufacturing Defect Classification.*
 - *Domain Adversarial Training of Neural Networks - Application for instance segmentation.*
- **Computer Vision for Fashion Analytic**
 - *Fashion Landmark Detection using Stacked Hourglass Networks.*
 - *Apparel Detection and Retrieval using Faster RCNN and Denoising Autoencoder.*
- **Object Detection and Tracking**
 - *Pedestrian Detection and Tracking using Histogram of Gradient and Kernelized Correlation Filters.*
 - *Face Detection, Gender Classification and Age Prediction using Convolutional Neural Networks and Haar Cascade Object Detectors.*
 - *Vehicle Detection and Tracking using Sliding Window based Object Detection and Kernelized Correlation Filters.*
 - *Deep Convolutional Network for Single Object Localization.*
 - *Person Re-identification and tracking in multi camera setup.*

ACHIEVEMENTS

- Winner of Random Hacks of Kindness – Goa 2016, Hackathon to make a difference with organizations that have social impact to create open source solutions to societal challenges.
- Shortlisted among 25 Innovators for Presidential Award for project DHWANI — An interactive system for differently abled people. (<http://www.iccig.org/innovation-scholars-in-residence-programme-rashtrapati-bhavan-president-house/>)
- Short-listed by NIF-India and nominated for residential program at Presidential House, India and also attended 3 days ICCIG-III Conference on Grassroots Innovations at Indian Institute of Management (IIM), Ahmedabad.
- Shortlisted among 51 Innovations out of 600 participants across all over India, by Department of Science and Technology, Government of India
- Awarded for Research Output – Faculty Category for consecutive four years – 2013 to 2016
- Certificate of Excellence for Winning a National Level Open Hardware and Software Presentation Competition

WORKSHOPS CONDUCTED

- One day workshop on Tensorflow for the faculty of Computer Engineering Department, Atmiya Institute of Technology and Science dated on 18 th January, 2017.
- An introductory workshop on “Scipy for Machine Learning” for the Graduate Students at Atmiya Institute of Technology and Science dated on 27 th January, 2017.
- A workshop series on “IoTs using Raspberry Pi and Arduino” for undergraduate students during January 2016 to March 2016
- Six Beginners and Advanced level workshops on Python Programming during July 2015 to January 2016.

OTHER COLLAB

<i>Lead Teacher</i> LeWagon, Montreal, QC	Oct 2020 - Present
<i>Mentor</i> Great Learning, Toronto, ON	Jan 2022 - Present
<i>Mentor</i> Mila Mentorship Program, Montreal, QC	Mar 2021 - Sep 2021