Nirzaree Vadgama

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Data Scientist with 9 years of experience in building data driven and machine learning algorithms for applications in remote sensing, electric mobility, and wearable technology. Proficient in Python and R, and in developing appropriate solutions to inter-disciplinary problems as a strong team player in a highly dynamic environment. Passionate for the environment and working towards a sustainable future.

Education

Pi School, Rome, Italy — March 2022 - May 2022
Fellow, School of Artificial Intelligence

Technical University of Kaiserslautern, Germany — Oct 2012 - Dec 2014
Master of Science (Embedded Systems), Electrical & Computer Engineering — GPA 1.5/1.0
(German Grading System: 1.0 = highest, 5.0 = lowest)

National Institute of Technology, Surat, India — July 2007 - May 2011
Bachelor of Technology, Electronics & Communication Engineering — GPA 7.91/10.00

Patents

System and method of contactless braking detection for a vehicle
Nirzaree Vadgama and Rajashekhar Ankali, India patent no. 300034, Grant Date: August 17, 2018.*(link)*

Publications

Flexy: Shape-Customizable, Single-Layer, Inkjet Printable Patterns for 1D and 2D Flex Sensing
Nirzaree Vadgama and Jürgen Steimle. ACM TEI 2017 *(link)*

Skills

General: Algorithms, Machine Learning, Deep Learning, Data visualization, Statistical Analysis, Data cleansing
Languages: Python (Pytorch, Tensorflow, scikit-learn, pandas, numpy), R Programming, R Shiny, SQL
Platforms: AWS, GCP

Experience

Technical Lead - Machine Learning and Product Development, CoRE Stack, Bangalore, India — Feb 2025 - ongoing
Leading algorithms, analytics and technical product development of CoRE stack; a participatory, community-friendly software stack for rural communities to improve natural resource management and climate resilience. Most recently developed and deployed STAC specs for all CoRE Stack data.

Senior Scientist II, CropIn Technologies, Bangalore, India — Sep 2022 - Nov 2024
Development and deployment of machine learning and deep learning algorithms using remote sensing data for crop type identification. This involved i) cleaning up and standardizing all client farm plot data (∼3 million records) which led to filtering of 43% of raw data, ii) development of data processing flow in python for end to end traceability of data from raw farm polygons to final train test splits, iii) training models for various crops and geographies, iv) testing model generalization through various grouping and sampling of data.

Senior Data Analyst and Algorithms Engineer, Skylo Technologies, Bangalore, India — Sep 2021 - Dec 2021
Architected algorithms for multimodal sensor data (GNSS, Inertial sensors) on Skylo's hub, a device that enables connectivity through Narrow Band-IoT protocol over geostationary satellites.

Senior Data Scientist, Ather Energy, Bangalore, India — August 2017 - Oct 2020
Developed and deployed algorithms for dashboard navigation and battery's State of Health(SoH) Estimation of Ather 450, India's first smart, connected, high-performance electric scooter. With limited battery data available for training the State-of-Health model, feature exploration was done in collaboration with battery domain experts. Various sets of features were explored to encompass the diverse riding and charging behavior of vehicle users and an explainable and lean machine learning model was built and deployed on the fleet of Ather vehicles. Developed a computationally lean Snap-to-Road algorithm to find the vehicle's position closest to the navigation path combing GNSS data (latitude, longitude, error, heading),vehicle's previous position and vehicle's speed.

Research & Development Engineer, Lumos Design Technologies, Bangalore, India July 2015 - June 2017
Developed algorithms for contactless brake sensing (patented), crash sensing and theft sensing through an Inertial Measurement Unit (IMU) mounted on bicycle frame. These algorithms have been implemented as sensing features in the product Aster, a backpack aimed at making cyclists safer on roads.

Master Thesis Student, Saarland University, Saarbrücken, Germany April 2014 - Dec 2014
Developed shape customizable flex sensor designs that can be fabricated instantly through conductive inkjet printing. I presented a design space for customization of sensors, spatial arrangements of sensing units for 1D and 2D deformation sensing, a thorough technical evaluation of the designs along with example applications.

Research Assistant, Embedded Intelligence Group, DFKI, Kaiserslautern, Germany Oct 2013 - April 2014
Developed PCB for sensitive wearable capacitive sensors for activity recognition.

Bachelor Thesis Student, National Institute of Technology, Surat, India July 2010 - April 2011
Designed and developed a gaming interface with neural (EEG) feedback for tailored learning of mathematics and language for special children.

Research Intern, Indian Institute of Science, Bangalore, India May 2010 - Jul 2010
Implemented time synchronization algorithm in multi-hop wireless sensor networks.

Open Source Projects

Sustainable Eateries June 2020 - present
Designed and built a webapp with the goal of raising awareness about the waste generated by eateries around the globe, through crowd- sourced data collection and map visualization. The webapp has been built in R Shiny, is open-source and is live at sustainableeateries.com

Urban Natural Farms Jan 2022 - present
Designed and built a platform to enable natural farming in vacant sites in urban areas with the intent of producing organic food, mitigating impacts of climate change and for community building. The webapp has been built in R Shiny, is open-source and is live at urbannaturalfarms.com

Online Courses

Climate Change AI Summer School June 2024 - Aug 2024
Applied Machine Learning in Python - Coursera Jan 2021

Scholarships

Deutschland Stipendium Oct 2013 - September 2014
J.N. Tata Endowment for Higher Education of Indians 2012

Talks, volunteering, outreach

Abstract + Oral Talk, Managing Sustainable Transitions in Agriculture: Newer Directions for Research and Civic Action 16-18 November 2023
Spoke about a framework to enable collaborative action towards sustainable urban food systems.

Panelist, Sustainable Food Systems in Urban Spaces, IISER Pune November 2022
Spoke about the role of technology platforms in enabling transition towards sustainable urban food systems.

Volunteer, NeurIPS 2021 Dec 2021
Contributed to organizing of NeurIPS 2021 as a volunteer.

Student Volunteer, ACM TEI 2017 March 2017
Contributed to organizing of ACM TEI 2017 at Yokohama as a volunteer.

Other

Languages English (fluent), Gujarati (native), Hindi (fluent), German (basic)