

Vrutangkumar V. Shah, Ph.D.

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SUMMARY

- Enthusiastic and self-motivated scientist with 10+ years of experience in digital medicine and statistical analysis.
- Excellent time management skills, resulting in the completion of 10+ projects during 3 years of postdoctoral research and a key contributor in the development of design of experiments and statistical analysis for various clinical studies including clinical trials.
- Demonstrated an excellent ability to function in an interdisciplinary team setting, having worked closely with 10+ cross-functional experts at international levels and external pharmaceutical companies with 15+ journal articles in the last 3 years.
- Improved turning algorithm performance by 20%, which will be used in the commercialized version of Mobility Lab, version 3, APDM Wearable Technologies.

WORK EXPERIENCE

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|--|---------------------------|
| Lead Biostatistician, Consulting: Wearable Technologies & Digital Biomarkers – Clario | May 2022 – Present |
| <ul style="list-style-type: none">• Leading Statistical Analysis Plan (SAP) package service portfolio for clients | |
| Research Scientist, R & D: Wearable Technologies & Digital Biomarkers – Clario | December 2021 – May 2022 |
| <ul style="list-style-type: none">• Led scientific and engineering teams to design and develop Clinical Outcome Assessment (COA) solutions for various therapeutic indications | |
| Research Engineer 3 – Balance Disorders Lab, OHSU | Nov. 2021 – Present |
| Senior Research Associate | August 2021 – Nov. 2021 |
| Postdoc Scholar | August 2018 – August 2021 |
| <ul style="list-style-type: none">• Consulting 5+ pharma industry for selecting digital gait biomarkers for clinical trails• Outcomes: 15 journal articles (13 published, 2 under review), and many more under preparation• Leading 7+ projects related to home monitoring for patients with neurological disorders using wearable devices in collaboration with APDM Wearable Technologies through AWS• Applied logistic regression, and Random Forest (as feature selection) on gait measures to identify best digital biomarkers of mobility for clinical trials in 200+ patients with neurological disorders that lead to a 5% increase in AUC with only a couple of features compared to AUC using all features (software: R, and Python)• Developed a first open-sourced algorithm of detecting freezing-of-gait based on FFT and correlation features from time-series data of inertial measurement sensors that led to an improvement of 10% improvement in accuracy compared to the previous version (software: Matlab)• Involved with Letter of Intent FDA submission for COA | |
| R & D Engineer – Consure Medical Ltd. | May 2018 – July 2018 |
| <ul style="list-style-type: none">• Led next-generation projects related to continuous monitoring for fecal incontinence in bedridden patients and applied for ~1M funding | |
| Founder – Stealth Mode Startup | April 2017 – April 2018 |

- Developed a prototype for pupilometer and propose a novel machine learning method for detection of Pre-symptomatic Parkinson's disease, and resulted in an indian patent application (got covered in Times of India)
- Conceptualized, designed, developed IEC protocols and collected patients' data for various studies by Collaborating with Neurologists and Parkinson's Movement Disorder Society in Ahmadabad, Gujarat
- Developed diagnostic and therapeutic tools for Parkinson's Disease and collected 60+ subjects' data from Gujarat
- Applied state-of-the-art machine learning algorithms to detect Parkinson's disease in prodromal phase using compute vision + longitudinal SVM machine learning and achieved a diagnostic accuracy of 0.92 (software: Matlab)
- Applied to BIRAC BIG Scheme in Feb 2018 as PI with a total budget of 47.8 Lakhs rupees (selected for a final interview)

Ph.D. Scholar – IIT Gandhinagar

July 2012 – April 2018

- Outcomes: 1 Indian patent application, 5 journal articles (4 published, 1 under review), and 6 conference publications
- Led a small team on various projects, including B.Tech, M.Tech, and Ph.D. scholars with a diverse background including mechanical, electrical, biomedical, and bioengineering discipline

EDUCATION

Ph.D. in Engineering

2012 – 2018

Indian Institute of Technology (IIT) Gandhinagar, Gujarat, India

B.E. in Biomedical Engineering

2007 – 2011

L.D. College of Engineering, Gujarat, India

3rd Rank in Gujarat University (Biomedical Engineering)

AREAS OF INTEREST

Digital Medicine, Machine Learning, Signal Processing, Time-series Analysis, System Identification, of Control and Estimation Algorithms in Healthcare, Neurological disorders

TECHNICAL SKILLS

R, Matlab, SQL, Python, GitHub, SAS, LATEX, Inkscape.

SELECTED HONORS AND AWARDS

Young Investigator Award, National Ataxia Foundaiton (\$50,000)

Feb 2022

CMSC 2021 Whitekar Research Track Award (~\$2,500)

June 2021

ACTRIMS forum 2020 Travel grant (US \$600)

December 2019

Overseas Research Fellowship (~ US \$13,900)

September 2016 – March 2017

IEEE EMBS ISSNE 2015 Travel Award (~ US \$1,500)

July 2015

Start Early Ph.D. Fellowship (~\$6500)

July 2012 – July 2016

Best Sahajanad Laser Tech Biomedical Innovation Award (~ US \$300)

April 2011

Patent:

[1] Shah, V. V., and Palanthandalam-Madapusi, H. J., "A system for detecting variations in motor movements.", patent application number: 20182100533.

22 Publications ([Google Scholar](#)), 50+ Expert Reviews ([Publons](#)), Editorial Board Member in 4 Journals.