Dhaval Solanki, PhD

Assistant Professor,
Dept. of Electrical, Computer & Biomedical Engineering,
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URI | Website | ORCID ID | LinkedIn | Google Scholar | ResearchGate

HIGHLIGHTS

- ★ **$3.7M** funding involvement (including NIH-R01 and NSF-CPS)
- ★ **40+** peer reviewed publications, **10+** h-index , **350+** citations
- ★ **2** issued patents
- ★ Mentored/co-mentored **7+** Graduate students, **30+** undergraduate students
- ★ Taught **10+** undergraduate and graduate courses
- ★ Reviewer of **15+** journals and conference proceedings
- ★ Associate Editor and Guest Editor for reputed conference and journal

EDUCATION

PhD, Electrical Engineering, 2015-2020

- Indian Institute of Technology Gandhinagar, Gandhinagar, India.
- *Dissertation*: Virtual Reality-based Treadmill-assisted Adaptive Response Technology for Post-Stroke Gait Rehabilitation.

MTech, Electrical Engineering, 2013-2015

- Indian Institute of Technology Gandhinagar, Gandhinagar, India.
- *Thesis*: Design and development of a wearable non-invasive low-cost device for measuring physiological indices.

BE, Electronics and Communication Engineering, 2009-2013

- Vishwakarma Engineering College, Ahmedabad, Gujarat, India.
- *Capstone Design Project*: Voice recognition and applications

ACADEMIC POSITIONS

Affiliate Faculty Member (Sept 2024 - Present)
Interdisciplinary Neuroscience Program (INP)
University of Rhode Island, USA

Assistant Teaching Professor (Jan 2022 - Present)
Dept of Electrical, Computer and Biomedical Engineering,
University of Rhode Island, USA

Co-Director, Wearable Biosensing Lab (July 2022 - Present)

Dept of Electrical, Computer and Biomedical Engineering,
University of Rhode Island, USA

Postdoctoral Researcher (Jan 2021 - Dec 2021)
Advisor: Dr. Kunal Mankodiya
Wearable Biosensing Lab
Dept. of Electrical, Computer & Biomedical Engineering
University of Rhode Island

SCHOLARSHIP AWARDS

- 2015-2020: Visvesvaraya Fellowship by Ministry of Electronics and IT, India
- 2013-2015: Post Graduate Scholarship by the Ministry of Human Resource Development, India
- 2009-2013: Central Sector Scholarship by Ministry of Human Resource Development, India

ACADEMIC INTERESTS

Research: Wearable Devices, Smart E-Textile, Biomedical Signal Processing, Healthcare Technology, Assistive and Rehabilitative Technologies, Virtual Reality and Neuro Rehabilitation, Intelligent and Adaptive Systems.

Teaching: Digital Systems, Embedded Systems, Signals and Systems, Physiological Signals, Capstone Design, Microprocessors and Microcontrollers, Rehabilitation Technologies.

RESEARCH EXPERIENCE

Co-Director, Wearable Biosensing Lab (July 2022 - Present)

- Research
  - Preparing project proposal and securing external funding
  - Leading research projects
  - Preparing research papers
- Lab Operations
  - Interviewing and recruiting graduate and undergraduate students
  - Procuring research equipments and materials
  - Developing operational policies, procedures, and guidelines
  - Periodically evaluate the performance of lab members and provide feedback
  - Creating and strengthening collaboration with external collaborators
- Mentoring Students
  - Advising graduate and undergraduate students
    - PhD (7+)
    - Masters (10+)
    - Undergraduates (20+)
    - Visiting Scholars (4+)

Postdoctoral Researcher (Jan 2021 - Dec 2022)

- Leading federally (NSF) funded research projects
  - CAREER: CPS: Internet of Wearable E-Textiles for Telemedicine
  - NSF PFI-TT: KAYA: Smart Gloves as a Telemedicine Solution - From Lab to Market

- Leading foundation and company funded research projects
- Collaborating and conducting research with Dr. Susan D'Andrea at Kinesiology Dept, URI
- Mentoring Graduate (PhD and MS) and Undergraduate students (BME, URI)
- Mentoring BME Capstone Design Student Teams at URI
- Collaborating with external partners and arranging funds and resources
    - *Rhode Island Hospital* - Internet of Wearable E-Textiles for Telemedicine
    - *XThera Corp.* - Developing a functional prototype of a Theracycle system for sensing and visualizing physical activity
    - *Nautilus Defense Inc.* - Characterization of textile stretch sensors for body-worn movement measurements
    - *Women and Infants Hospitals* - Towards a multimodal smart textile medical monitoring system for Neonatal ICUs
    - *Virginia Commonwealth University* - CUTE: Soft E-Textile Neonatal Monitoring with Nurse-Centered Interfaces
    - *Computer Science Dept URI* - Towards a multimodal smart textile medical monitoring system for Neonatal ICUs
    - *University of Colorado Medical School* - Smart dietary interventions for people with polycystic kidney disease
- Grant Proposal Writing (Federal and Foundational grants)

Major Research Projects lead at URI

- Design and development of a telehealth-enabled stationary bike offering assistive and resistive exercise therapy for improving quality of life for patients with Parkinson's Disorder
- Kaya: Wearable e-textile gloves for in-home Parkinson's motor screening
- Care Portal: A clinician centered digital health portal for wearable data analysis
- RISE ABOVE: Reducing Internalized Stigma in Epilepsy - A Behavioral Online Video Education Program
- Baby-Guard: An IoT-based Neonatal Monitoring System Integrated with Smart Textiles
- Characterization of textile stretch sensors for body-worn movement measurements
- Investigating effects of anodal tDCS and virtual reality-based gait rehabilitation for post-stroke patients

Projects lead at Indian Institute of Technology Gandhinagar, India

- Design and development of an adaptive treadmill-assisted virtual reality-based gait rehabilitation platform for post-stroke patients
- Investigating implications of physiology-sensitive gait exercise on the lower limb electromyographic activity of hemiplegic post-stroke patients
- Integrating robotic gait training system with virtual reality for gait rehabilitation
- Design and development of smart non-invasive health monitoring device
- Design of instrumented shoes for gait characterization
- Design and development of an intelligent, adaptive, performance‑sensitive, and virtual reality‑based gaming platform for upper limb rehabilitation.
- Investigating implications of cerebral transcranial direct current stimulation on the gait performance of post-stroke patients

RESEARCH FUNDING

Research Grants at URI

- Under Review: Rhode Island Commerce Innovation Voucher: 'Developing Smart Textile-based prototype for vital signal monitoring' ($75,000; Role: PI)
- In Preparation: NSF: US-Ireland R&D Partnership: CPS: 'AI-ASSIST: Development of an AI-based Context-Aware Smart Textile System for Anxiety Management in Individuals with Autism' ($500,000; Role: PI)
- Under Review: NSF MRI: Track 1- 'Acquisition of a 3D Printer for Printing on Textiles to Advance Research and Education' ($750,000, Role: Co-PI)
- Under Review: Charles H. Hood Foundation: 'AI powered, context specific Augmentative and Alternative Communication system' ($200,000, Role: Co-PI)
- Awarded: GARIN/RI-INBRE: 'SmritiVR: A VR-based multimodal ADRD risk assessment platform' ($50,000; Role: PI)
- Funded: URI Office of Research Development: 'Mindgame: An interactive puzzle game with wearables and AI to monitor the effect of medication on ADHD symptoms' ($29, 818; Role: Co-PI)
- Funded: CPS: NSF-DST: REGAIN: 'An Adaptive Cyber-Physical Rehab Platform Integrating Virtual Reality, E-Textile Wearables, and AI for Stroke Survivors' ($500,000; Role: Co-PI)
- Funded: NIH R01: MINDER: 'Wearable sensor-based detection of digital biomarkers of adherence to medications for opioid use disorder' ($2.6M; Role: Co-Investigator)
- Funded: Champlin Foundation; 'KNIT & WEAR technology with computer-aided textile designing and manufacturing' ($125,000; Role: Co-PI)
- Funded: NSF: EAGER: 'Towards a multimodal smart textile medical monitoring system for neonatal ICUs' ($300,000; Role: Postdoctoral Researcher)
- Funded: Rhode Island Commerce Innovation Voucher: 'Characterization of textile stretch sensors for body-worn movement measurements' ($50K; Role: Postdoctoral Researcher)
- Funded: New England Epilepsy Foundation; 'Reducing Internalized Stigma in Epilepsy: A Behavioral Online Video Education' ($75K; Role: Co-Investigator)
- Funded: TheraCycle Inc; 'Developing a functional prototype of a Theracycle system for sensing and visualizing physical activity' ($50K, Role: Postdoctoral Researcher)
- Unfunded: A2 Pilot Awards: 'MedMas - An Age-Friendly Pill Dispensing Automated with IOT Scheduling' ($325,000; Role: Co-PI)
- Unfunded: Brown-URI-NSF ERC:Center for Engineering the Nervous System (CENS)
- Unfunded: A2 Pilot Awards: 'CareWear: A Wearable Data Curation Infrastructure for Dementia Caregivers'
- Unfunded: Sony Innovation Award: 'ShantiWear- Smart Clothing with Multimodal Physiological Sensing for Stress and Anxiety Disorder'
- Unfunded: Rhode Island Commerce Innovation Voucher; Tilt Active Rocking Chair
- Unfunded: NSF SCH: 'DietWell: An AI-Assisted, Smart Diet Management Platform for People with Polycystic Kidney Disease'
- Unfunded: NIH STTR: A telehealth-enabled stationary bike offering assistive and resistive exercise therapy for improving quality of life for patients with Parkinson's Disorder
- Unfunded: NIH NAM: 'eTrouser: A Smart e-Textile Trouser with an AI-Driven Fitness Technology for Seniors'

- Unfunded: EPSCoR: 'Aware-Clothes: Converging Smart Textiles, AI, and IOT to Build Industries of the Future for Human Health'
- Unfunded: NSF SCH: 'CUTE: Soft E-Textile Neonatal Monitoring with Nurse-Centered Interfaces'
- Unfunded: Gerber Foundation: 'CuteSleep: A Soft Smart Mattress to Monitor Child Sleep and Neurobehavioral Development and Nutrition'

Undergraduate and Graduate Research Grants at URI

- Funded: URI Undergraduate Research Grant; 'Flexible Upper-Arm Wearable For Stress & Recovery Monitoring' ($1400, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'Developing a Heat-Illness Preventing Technology and Dashboard Product by Leveraging Bluetooth Sensors and Live-Updating Dashboard Technologies' ($1000, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'Pulse and Patterns: Assessing Human Motion-Induced ECG Artifacts and Biocompatibility Study of Textile-Based Conductive Electrodes: A Comprehensive Study' ($1400, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'MindGame' ($1000, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'Phase 2: Visual Alteration for Photosensitive Epilepsy' ($910, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'Visual Color Alteration for Photosensitive Epilepsy' ($514, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'Developing and interfacing a wireless e-textile biosignal measurement band with a virtual reality game for grip assessment' ($1,200, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'The BalanCIR' ($1,400, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'T-Cup: Prototyping a medication cup to analyze tremor progression in Parkinson's Patients' ($1,000, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'Understanding the Feasibility of Smart Position and Movement Tracking Mattress Pad to Track Pressure Injuries in Geriatric and Post-Op Patients' ($1,400, Role: Mentor)
- Funded: URI Undergraduate Research Grant; 'EMGrip - Prototyping an EMG wearable device to detect changes in grip exertion with a computer game interface' ($1,050, Role: Mentor)
- Funded: URI Undergraduate Research Grant - 'Smart Position and Movement Tracking Mattress Pad to Improve the Adherence of Sleeping Posture in Geriatric and Post-Op Patients' ($1,400, Role: Mentor)

***Grants at IITGN*:**

- Funded: Nvidia: GPU Grant; Using GPU to accelerate graphical rendering for virtual reality-based rehabilitation
- Funded: MEITY Visvesvaraya Infrastructure Grant; Gait Rehabilitation System: Integrating Gait Training System with Virtual Reality for post-stroke patients
- Funded: MEITY Visvesvaraya Contingency Grant; Gait Rehabilitation System: Integrating Gait Training System with Virtual Reality for post-stroke patients
- Submitted: NIH R21; Feasibility Testing of mobile Virtual Reality Balance Training in conjunction with Cerebellar Transcranial Direct Current Stimulation in a Low-Resource Community Setting

TEACHING EXPERIENCE

Assistant Teaching Professor, URI (Jan 2022 - Present)

- **Teaching**
  - Microprocessors (ELE 205, Spring 2022, Spring 2023)
    - Updated/Developed the content of the course
  - Microprocessors Laboratory (ELE 206, Spring 2022, Spring 2023)
    - Updated/Developed the content of the lab
  - BME Capstone I (BME 484, Fall 2023, Fall 2024)
  - BME Capstone II (BME 485, Spring 2022, Spring 2023, Spring 2024)
  - Fundamentals of Engineering - II (EGR 106, Spring 2022, Spring 2023)
  - Fundamentals of Engineering - I (EGR 105, Fall 2022)
  - Medical Imaging Laboratory (BME 465/ELE 565, Fall 2022, Fall 2023, Fall 2024)
  - Biomedical Engineer Seminar II (BME 281, Fall 2022)
    - Restructured and improved course content
  - Biomeasurement Laboratory (BME 361, Fall 2022, Fall 2023, Fall 2024)
    - Updated/Developed the curriculum of the labs
  - Physiological Modeling (BME 461/ELE 461/ELE 561, Fall 2022, Fall 2023)
  - Special Problems (BME 491, Fall 2022, Fall 2023)
  - Biomedical Instrumentation Laboratory (BME 363, Spring 2023)
    - Updated/Developed the curriculum of the labs
  - Biomedical Engineer Seminar I (BME 181, Spring 2023)
    - Restructured and improved course content
  - Masters Project (Independent Study) (ELE 598, Spring 2023, Spring 2024)
    - Mentored an ELE/BME MS student to develop an analog frontend for biosignal monitoring
- **STEM Educational Activities**
  - Organizing and leading BME SPARK Program (Summer 2023)
  - Mentored an interdisciplinary UG student team for project titled as ‘EMGrip - Prototyping an EMG wearable device to detect changes in grip exertion with a computer game interface’, (2023)
  - Mentored a BME UG student team for project titled ‘Smart Position and Movement Tracking Mattress Pad to Improve the Adherence of Sleeping Posture in Geriatric and Post-Op Patients’, (2023)
  - Organizing and leading SPARK HACK-A-THON (Summer 2023)
  - Organizing and leading BME SPARK Program (Summer 2022)
  - Restructuring BME SPARK Program (Summer 2022)
  - Mentored a BME UG student under RI-INBRE SURF program (Summer 2022)
  - Mentored a BME UG student under RI-INBRE S&E Fellow program (Summer 2022)
  - Member of the BME Capstone Design core teaching team
  - Mentored two capstone teams (AY 2021-2022)
  - Mentored a capstone team (AY 2020-2021, Spring Semester)
  - Mentored a BME UG student under RI-INBRE SURF program (Summer 2021)

- Deploying pilot BME SPARK Program (Summer 2021)
- Developing curriculum for the BME SPARK program (Summer 2021)

Indian Institute of Technology Gandhinagar, India

- *Teaching Assistant for following Courses*
  - Electronic Instrumentation (ES 641; Spring 2016-2017, Spring 2018-2019, Spring 2019-2020)
  - Artificial Intelligence (ES 612; Fall 2016-2017)
  - Digital Systems and Microprocessors (ES 232, Spring 2013-2014)
  - Introduction to Analog and Digital Electronics Lab (ES 104; Spring 2015-2016, Summer 2016)
- *Teaching Assistant for following Labs*
  - Introduction to Analog and Digital Electronics Lab (ES 104; Spring 2014-2015, Spring 2015-2016, Summer 2016)
  - Electrical Systems Lab (EE 431; Fall 2017-18, Summer 2018)
  - Analog Circuits Lab (EE 321; Fall 2013-2014, Fall 2014-2015, Fall 2018-19, Fall 2019-2020)
- *Teaching Assistant for following duties*
  - Graduate Student Orientation (Fall 2018 and Fall 2019)
    - Helping new graduate students to orient with different labs and facilities
    - Conducting research discussion with new graduate students
  - Short-Course Arrangement (Fall 2015-2016)
    - Arranging short (weekend) courses
    - Coordinating with Academic Affairs
    - Coordinating with Instructors
    - Facilitating logistical course activities
  - Faculty Recruitment Process (Spring 2017-2018)
    - Coordinating logistic arrangements for prospective faculties
    - Arranging lectures/ research talks for visiting faculties
    - Arranging meetings of prospective faculties with internal faculties
    - Collecting and arranging feedback and evaluation

STUDENT MENTORING & ADVISING

University of Rhode Island, USA

- PhD Graduate Students
  - Suparana Veeturi, (PhD) Mentor and Committee Member, 2027
  - Mehmet Seckin, (PhD), Mentor and Committee Member, 2026
  - Md Abdullah Al Rumon, (PhD), Co-Advisor and Committee Member, 2025
  - Shehjar Sadhu, (PhD), Co-Advisor and Committee Member, 2024
  - Vignesh Ravichandran, (PhD), Co-Advisor and Committee Member, 2024
  - Daniel Moonan, (PhD), Committee Member, 2023
  - Gozde Cay, (PhD), Technical Mentor, 2022
  - Nicholas Constant, (PhD), Committee Member, 2021
- MS Graduate Students

    - Isaac Gonzalez, Advisor, 2025
    - Friederike Hicking, (MS), Advisor, 2024
    - Suparana Veeturi, (MS) Mentor and Committee Member, 2023
    - Islam Dymov, (MS), Advisor, Independent Thesis Study Mentor, 2023
    - Jose Miguel Canton Leal, (MS) Mentor and Committee Member, 2022-2023
    - Lauren Deus, (MS) Committee Member, 2022-2023
    - Sabah Ummie, (MS) Mentor and Committee member, July 2022
    - Shehjar Sadhu, (MS) Mentor and Committee Member, 2022
    - Vignesh Ravichandran, (MS) Mentor and Committee Member, 2022
    - Shelley Oliveira Barbosa, (MS) Mentor and Committee Member, 2022
- Visiting Scholars and Interns
    - Shubham Chomal
    - Kofoworola Fapohunda
    - Suparna Veeturi
    - Md Abdullah Al Rumon
- 30+ UG Student Interns
    - BME Capstone Teams (2 AY 21-22, 1 AY 20-21, 1 AY 23-24)
    - Science and Engineering Fellows (Summer 2021 and Summer 2022)
    - INBRE SURF Students (Summer 2021 and Summer 2022)
    - INBRE SURE Students (Spring 2022)
    - URISE Students (Spring 2024, Summer 2024, Fall 2024)
    - ITS Innovation Students (AY 22-23, AY 23-24, AY 24-25)

Indian Institute of Technology Gandhinagar, India

- 2 MS Grad Students
- 2 UG EE Students
- 7 Research Fellows
- 2 PhD students (helped them to shape their research problem)
- 20+ UG Course Project Teams (2013-2020)

Achievements and Accomplishments of My Students

2024

- Winner of URI E-Week Research Showcase - Lohith Chatragadda
- NSF Student Travel Award at the 2024 IEEE Conference on Body Sensor Networks - Friederike Hicking
- NSF Student Travel Award at the 2024 IEEE Conference on Body Sensor Networks - Shehjar Sadhu

2023

- Student Travel Award at the 2023 IEEE Conference on Body Sensor Networks - Abdullah Al Rumon
- Student Travel Award at the 2023 IEEE Conference on Body Sensor Networks - Shehjar Sadhu
- Best Poster Award at the 2023 IEEE SmartComp Conference - Abdullah Al Rumon, Suparna Veeturi, Mehmet Seckin
- NSF Travel Award to Attend the 2023 IEEE SmartComp Conference - Abdullah Al Rumon
- NSF Travel Award to Attend the 2023 IEEE SmartComp Conference - Suparna Veeturi

2022

- Enhancement of Graduate Research Awards 2022-2023 Grant [$1,000] - "Tend2Ortho: Personalized Physiological Sensing Joint Sleeves for Musculoskeletal Injuries" - Vignesh Ravichandran
- Winner of the the 2022 IEEE Sensors Big Idea Pitch (BIP) competition - MD Abdullah Al Rumon
- NSF Travel Award to Attend the IEEE Chase Conference to Present a Research Paper - Shehjar Sadhu
- One-year Doctoral Fellowship sponsored by the URI Foundation & Alumni Engagement (URIFAE) - MD Abdullah Al Rumon
- The ECBE Outstanding Graduate Researcher Award - Gozde Cay

2021

- Enhancement of Graduate Research Awards 2021-2022 Grant [$1,000] - "Re-Boot. Cueing device for overcoming Freezing of Gait in Parkinson's Disease" - Jose Canton
- Enhancement of Graduate Research Awards 2021-2022 Grant [$1,000] - "DietWell: Integration of Wearable Devices into Electronic Health Records for Smart Diet Monitoring Interventions in Polycystic Kidney Disorder" - Shehjar Sadhu
- NSF Travel Award to Attend the IEEE Chase Conference to Present and Demo a Research Project - Afnan Altekreeti

ENTREPRENEURIAL EXPERIENCE

- Founded Valise Tech, A proprietary company in India
    - Developed a low cost liquid level monitoring systems
    - Optimized designs for day to day usage based on user requirements
    - Developed and optimized hardware to reduce the cost and maximize the affordability
    - Deployed the system at several sites and ensured proper functioning

INVITED LECTURES, TALKS, SEMINARS, & PANELS

- *Invited Talk:* BME 468 Neural Engineering, 'Adaptive Technology for Post- Stroke Rehabilitation', Spring 2025.
- *Invited Talk:* REGAIN Webinar Series, 'Overview of the Regain Project', Sept 6, 2024
- *Invited Talk:* IEP ACIEE 2024, 'International Faculty Research Initiatives; Scaffolding Educational Undergraduate and Graduate Partnerships', Nov 7, 2024
- *Invited Talk:* APTA RI Meeting, 'Kaya- Telemonitoring progress of Parkinson's', Nov 9, 2023
- *Invited Lecture:* BME 281- Seminars, 'Arduino for Beginners', URI, Oct 23, 2023
- *Invited Lecture:* BME 360- Biomeasurement, 'Analog Sensors', URI, Oct 3, 2023
- *Invited Talk:* Graduate Seminar, 'Assistive and Rehabilitative Health Technology', URI, Dec 09, 2022
- *Panelist:* Virtual residency program workshop for 'Assessing and Anticipating Researcher Needs', Held Virtually, Jun 8, 2021
- *Invited Lecture:* BME Capstone 2021: 'Creating Scope of Work', URI, Sep 27, 2021
- *Invited Lecture:* BME Capstone 2021: 'Preparing your Presentation', URI, Nov 29, 2021
- *Invited Talk:* Graduate Seminar, Adaptive Treadmill-Assisted Virtual Reality-Based Gait Rehabilitation Platform for Post-Stroke Physical Reconditioning, URI, Sep 17, 2021

- *Conference Talk*: Bodyweight support assisted virtual reality-based treadmill walk with gait characterization, in the IEEE 10th International Conference on Computing, Communication and Networking Technologies (ICCCNT 2019), IIT Kanpur, India, July 6-8, 2019.
- *Conference Talk*: A step towards design and validation of portable, cost-effective device for gait characterization, in the 17th IEEE/ACIS International Conference on Computer and Information Science (ICIS 2018), Singapore, SG, Jun. 6-8, 2018.
- *Conference Talk*: Understanding Implication of VR-assisted Treadmill Walk on Gait-related Indices, in the Eighth IEEE International Conference On Computing, Communication And Networking Technologies (ICCCNT), IIT Delhi, India, July 3-5, 2017.
- *Conference Talk*: Towards a wearable non-invasive low-cost device for Measuring Physiological Indices. in the 2015 IEEE Region 10 Symposium. IEEE, Gandhinagar, India, May 13- 15, 2015.

UNIVERSITY & PROFESSIONAL SERVICES

University Committee Services

- Serving on BME Technician Hiring Committee, 2024
- Serving on Pre-College Student Engagement Committee 2024

University Departmental Services

- Representing URI BME during Welcome Days, 2022, 2023, 2024
- Representing URI BME during Open House, 2022, 2023, 2024
- Participating in BME Program Meetings and Activities, 2022, 2023, 2024
- Participating in ECBE departmental Meetings and Activities, 2022, 2023, 2024
- Participating in COE Meetings and Activities, 2022, 2023, 2024

Promoting Undergraduate Research

- Organizing BME SPARK program 2021, 2022, 2023, 2024
- Mentoring UG research projects funded by URI Undergraduate Research Office 2022, 2023, 2024, 2025
- Mentoring UG students research through INBRE SURF and S&E programs 2022, 2023, 2024
- Leading UG students to national level competition (NIH DEBUT) 2021, 2023
- Promoting international publications by UG students (CHASE 2021, BSN 2023, MDPI Sensors 2025)

Organizing Workshop/Conference

- Organized ‘The First Symposium on Smart Heath and Wearable’; University of Rhode Island; Dec 19, 2024.
- Organized ‘US-India RE-GAIN Webinar Series’ 2024-2025
- Organized a special session at IEEE BHI 2022, ‘Future Smart Textiles in Healthcare: Opportunities & Challenges in E-Textiles, Edge and IOT, Device/Data Security, and AI’
- Serving as Poster and Demo session Judge for IEEE BSN 2023.

Organizing/Participating in lectures/open house/welcome day

- Represented BME/COE at ‘RI National Guard STEM event’, Sep 27, 2024.
- Represented URI on ‘URI Day at the (RI) State House’, Mar 22, 2024.
- Poster Presentation at ‘CHS Student Research Night’, Apr 24, 2024
- Participated and Presented Wearable Biosensing Lab during the Visit of NSF director (Dr. Sethuraman Panchanathan) at the URI, May 2, 2023

- Co-organizing workshop 'MULTIMODAL NEUROIMAGING DAY', July 19, 2022
- Organizing and hosting a WBL Summer Showcase, URI, July 28, 2021
- Represented URI at 'Faculty Office Hours', April 21, 2021
- Prepared a proposal for the symposium "Symposium on Translational Research in Neuroengineering and Neurorehabilitation" and submitted it to the Dept of Science and Technology, India.
- Organizing the eighth 'Roddam Narasimha Lecture', IITGN, India, August 5, 2019.
- Organizing the seventh 'Roddam Narasimha Lecture', IITGN, India, August 13, 2018.
- Organizing the sixth 'Roddam Narasimha Lecture', IITGN, India, June 6, 2017.
- Organizing the fifth 'Roddam Narasimha Lecture', IITGN, India, August 10, 2016.
- Organizing a workshop on 'Modern Trends in Diagnostics and Rehabilitation', IITGN, India, August 4, 2016.
- Organizing a workshop on 'Modern Techniques in Rehabilitation', IITGN, India, January 22, 2015.
- Organized a talk on "Stroke: Pathophysiology, Treatment and Rehabilitation", IITGN, India, May 1, 2018.
- Represented IITGN in the 'Army Technology Seminar', Delhi, India, January 14-15, 2018.

K-12 STEM Activities

- Representing URI BME during RI National Guard STEM Day, 2023, 2024
- Participated and Represented URI at the RI Brain Fair, Mar 12, 2023, 2024
- Organized SPARK HACK-A-THON for High School students, June 19, 2023
- Represented BME, URI at Barrington School Career Day, June 9, 2023, 2024
- Reviewing South Kingstown High School students for their biotechnology projects, June 8, 2023

Reviewing Services for Journals and Conference

- IEEE Internet of Things Journal (IF: 9.9)
- IEEE Journal of Biomedical and Health Informatics (IF: 5.2)
- IEEE Sensors Journal (IF: 4.3)
- IEEE Transaction on neural rehabilitation and systems engineering (IF: 3.8)
- Frontiers in Aging Neuroscience (IF: 5.7)
- Frontiers in Neurology (IF: 4.6)
- Frontiers in Psychology (IF: 4.2)
- BMC Neurology (IF: 2.9)
- Elsevier Smart Health
- Frontiers in Robotics and AI
- Frontiers in Rehabilitation Sciences
- Frontiers in Medical Technology
- Brain Plasticity, IOS Press
- ACM Computer-Human Interaction (CHI)

Federal (NSF) Grant Review Contributions

- Participated in a merit review panel for the CBET division of the U.S. National Science Foundation
- Participated in a merit review panel for the SBIR/STTR program in the Digital Health subtopic of the U.S. National Science Foundation

MEMBERSHIPS

- Member of American Association of University Professors (AAUP)
- Member of Institute of Electrical and Electronics Engineers (IEEE)
- Member of IEEE Engineering in Medicine and Biology Society (EMBS)
- Member of IEEE Computer Society
- Member of IEEE Young Professionals
- Member of IEEE Council on Electronic Design Automation
- Member of IEEE Sensors Council
- Member of IITGN Alumni Association

PUBLICATIONS

Journal Publications

Under Preparation/Review

1. Lohith Chatragadda, Aiden Fletcher, Sam Zhong, Fabian Vargas, Kunal Mankodiya, Matthew Delmonico , Dhaval Solanki; "Development and assessment of a soft wearable for sEMG-based hand grip detection and control of a virtual environment" MDPI Sensors.
2. Krishna Venkatasubramanian, Shadi Abtahi, Tina-Marie Ranalli, Johanna Appleton, Vignesh Ravichandran, Shubham Chomal, Dhaval Solanki, Kunal Mankodiya, and Stephanie Carreiro; "Understanding the design space for monitoring adherence to medication-based treatment for people with opioid use disorder using a wearable health monitoring device"
3. Vignesh Ravichandran, Jose Canton, Dhaval Solanki, and Kunal Mankodiya."Reboot: A wearable sensing system for in-home parkinson's motor assessments"
4. Rumon, Md Abdullah al, Vignesh Ravichandran, Jim Owens, Dhaval Solanki, and Kunal Mankodiya.,"A scalable, and tunable braided yarn for micro and macro physiological sensing", Nature Scientific Reports.

2025

5. Margolis, Seth A., Sarah Prieto, Allyson Goldstein, Sarah Kaden, Elijah Castillo, Shehjar Sadhu, Dhaval Solanki et al. "Feasibility and acceptability of an online epilepsy stigma self-management program." Epilepsy & Behavior 165 (2025): 110331.
6. Venkatasubramanian, Krishna, Johanna Appleton, Tina-Marie Ranalli, Kunal Mankodiya, Dhaval Solanki, and Stephanie Carreiro. "Leveraging Trauma Informed Care for Digital Health Intervention Development in Opioid Use Disorder." Journal of Medical Toxicology 21, no. 1 (2025): 60-68.

2024

7. Venkatasubramanian, Krishna, Tina-Marie Ranalli, Priyankan Kirupaharan, Dhaval Solanki, and Kunal Mankodiya. "Understanding the challenges nurses encounter with monitoring technologies in a NICU." International Journal of Human–Computer Interaction 40, no. 23 (2024): 8142-8165.
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Conference Publications

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1. Shehjar Sadhu, Elijah Castillo, Lisa Weyandt, Dhaval Solanki and Kunal Mankodiya; “Feasibility of a digital health puzzle game for detecting computer mouse behavioral patterns in ADHD” In 2024 IEEE 21st International Conference on Wearable and Implantable Body Sensor Networks (BSN). IEEE, 2024.
2. Friederike Hicking, Shehjar Sadhu, Vignesh Ravichandran, Lisa Weyandt, Geanina Oana Costea, Kunal Mankodiya and Dhaval Solanki; “Comparative Investigation of Smartwatch Data in Children with ADHD and Non-ADHD” In 2024 IEEE 21st International Conference on Wearable and Implantable Body Sensor Networks (BSN). IEEE, 2024.
3. Mehmet Seckin, Shehjar Sadhu, Md Abdullah Al Rumon, Madison Gravel, Heather DiFazio, Nick Johnson, Kaci Perry, Dhaval Solanki and Kunal Mankodiya; “MedDock: A 3D-Printed Smart Pill Dispenser with Sensitive Textile Sensor for Adherence Monitoring” In 2024 IEEE 21st International Conference on Wearable and Implantable Body Sensor Networks (BSN). IEEE, 2024.
4. Veeturi, Suparna; Ravichandran, Vignesh; Cerullo, Alex; Chomal, Shubham; Shahriari, Yalda; Venkatasubramanian, Krishna; Carreiro, Stephanie; Solanki, Dhaval; Mankodiya, Kunal; “Evaluating Dry Electrodes and Bioinstrumentation for Wearable Arm ECG Acquisition” International Conference on the Challenges, Opportunities, Innovations and Applications in Electronic Textiles (2024)

5. Rumon, Md Abdullah al; Cerullo, Alexander; Berube, Leah; Ravichandran, Vignesh; Shahriari, Yalda; Solanki, Dhaval; Mankodiya, Kunal; “TexSense: Comparative ECG Analysis of E-Textile and Sticky Electrodes During Human Motion” International Conference on the Challenges, Opportunities, Innovations and Applications in Electronic Textiles (2024)
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9. Chatragadda, Lohith, Adrian Valdez Franco, Kunal Mankodiya, Matthew Delmonico, Dhaval Solanki; “EMGrip: Integrating an e-textile forearm band with a computer game to detect changes in grip exertion” In 2023 IEEE 20th International Conference on Wearable and Implantable Body Sensor Networks (BSN). IEEE, 2023.
10. Shehjar Sadhu, Vignesh Ravichandran, Nicholas Constant, Umer Akbar, Kunal Mankodiya and Dhaval Solanki; “Exploring the Impact of Parkinsons Medication Intake on Motor Exams Performed in-home Using Smart Gloves” In 2023 IEEE 20th International Conference on Wearable and Implantable Body Sensor Networks (BSN). IEEE, 2023.
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2. “Multi-parameter Patient Monitoring System”, Patent Number: 427385.
3. “An apparatus and a method for wearable physiological monitoring”, IP Disclosed in Apr 2021. [Provisional Patent Application filed]
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NEWS RELEASES

- 2025 “Could wearables be the future in diagnosing ADHD?”
- 2024 “URI-led team nets $500K to develop wearable tech for stroke survivors”
- 2024 “URI researchers head international team exploring wearable technology to help stroke survivors”
- 2023 “URI, UMass Chan Medical School researchers developing high-tech armband to help people with opioid-use disorder’
- 2023 “AI-powered arm band to detect opioid use disorder, withdrawals in development at UMass Chan, URI”
- 2023 “APTA RI Annual Meeting”
- 2023 “How Smart is Your T-Shirt?”
- 2022 “IIT-Gn professors, students develop gait training system”
- 2018 “Augmented video games can help in stroke recovery: study”
- 2018 “Mind over body”
- 2015 “A wristband to keep your heart safe”
- 2015 “IIT Gandhinagar student created one touch doctor device, perform many medical tests”