Prabhav Nadipi Reddy

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EXPERIENCE

Post	Dates	Institution	Responsibilities
Lecturer (Teaching)	Sep 2018 -	University College London, UK	*Teaching; Research; Tutoring; Assessments; Module Leadership; Project Supervision; Taught courses* – Clinical Engineering, Medical Instrumentation 1 and 2
Lecturer	Jan 2018 – Aug 2018	Manchester Metropolitan University, Manchester, UK	*Teaching; Tutoring; Assessments; Administrative Duties; Project Supervision; Taught courses* – Microwave Engineering, Programming in Java, Mathematical Methods 1 and 2
Tutor A	Nov 2015 – Jan 2018		*Teaching; Tutoring; Assessments; Pastoral Support; Administrative Duties; Taught courses* – Electrical and Electronic Science, Engineering Mechanics, Mathematics 1 and 2, Electronic Systems, Programming, Advanced Electronic Systems
Visiting Lecturer	Aug 2016 and July 2017	Nanjing University of Aeronautics and Astronautics, Nanjing, China	*Teaching and Assessments*: Electronic Design for Biomedical Applications (2016); Data Acquisition and LabView Programming (2017)
Research Associate	May 2014 – Oct 2015	Manchester Metropolitan University, Manchester, UK	Project Title: Early detection of ulceration in diabetic foot; Key Skills: Medical Device Development, Data Acquisition, Sensors, Human Clinical Trials, Animal Tissue Experiments; Highlights: Finalists - SBRI bid for Diabetic Foot Ulceration
Associate Professor	July 2013 – May 2014	Vellore Institute of Technology, Vellore, India	*Taught courses* – Electric and Magnetic Circuits, Semiconductor Devices and Circuits, Integrated Circuits, Pattern Recognition, Biomedical Signal Processing, Sensors and Signal Conditioning, Rehabilitation Engineering; *Supervising student projects* – Guided graduate and undergraduate dissertation work; *Pastoral Support*; *Administrative Duties*
Assistant Professor	June 2012 – July 2013		

EDUCATION

Degree	Dates	Institution	Details
PG Cert. in Learning and Teaching in HE	2016-17	Manchester Metropolitan University, Manchester, UK	*Optional Unit*: Enhancing Learning, Teaching and Assessment with Technology
Ph.D.	Aug 2006 – July 2013	Christian Medical College, Vellore, India	*Thesis Title:* Implanted Myoneural Interfaces for Artificial Hand Control*; Summary:* The thesis involved designing an implantable device to enable bidirectional communication between the body and an artificial hand. The device recorded EMG from the body and sent outside the body for prosthesis control, and was powered wirelessly using an inductive link. Algorithms for processing the EMG were developed*; Key Skills:* Electronic Design, Embedded Systems, PCB design, Power Electronics, Wireless Communication (IEEE 802.15.4), Pattern

			Recognition, Physiological Data Acquisition, Animal Experiments
M.Tech.	July 2004 – Jun 2006	Indian Institute of Technology, Bombay, India	*Key Courses: Medical Instrumentation, Biomaterials, Human Physiology, Neuroscience* *Thesis Title: Metallization of DNA*
B.Tech.	July 2000 – May 2004	Indian Institute of Technology, Guwahati, India	*Key Courses: Semiconductor Devices, Analog Electronics, Digital Electronics, VLSI Design, Embedded Systems, Signal Processing, Analog Communications, Digital Communications, Electromagnetics, Control Systems, Digital Control Systems, Instrumentation; Thesis Title: Classification of EMG for upper limb prosthesis control*

TEACHING EXPERIENCE

Course	Year	Institution	Topics taught (Type of delivery)
Undergraduate Courses			
Medical Instrumentation 1	2018-	University College London, UK	Analog Electronics – Diodes; Transistors; Op-amps; Amplification; Filtering
Medical Instrumentation 2	2018-		Microcontrollers; Control Systems; Medical Safety; Noise and Interference
Clinical Engineering	2018-		Sensors and Transducers; Electrical Safety
Electronic Engineering Design	2017-18	Manchester Metropolitan University, Manchester, UK	Microwave Engineering (Lectures)
Mathematics 1	2017-18 2016-17		MATLAB (Lab Sessions) Calculus; Statistics, Matrices (Tutorials)
Mathematics 2	2017-18 2016-17		Fourier Transforms (Lectures) Differential Equations (Lectures) MATLAB (Lab Sessions) Transforms; Series Expansions; Differential Equations; Probability (Tutorials)
Computer and Network Technology 1	2017-18 2016-17		Java Programming (Lab Sessions)
Computer and Network Technology 2	2017-18		Advanced Java Programming; Embedded Systems (Lab Sessions)
Electronic Systems	2017-18 2015-16		Verilog Programming; Power Amplifiers (Lab Sessions)
Electrical and Electronic Science	2016-17 2015-16		Circuit Components; Digital Circuits; Circuit Theory; AC Circuit Theory (Lab Sessions)
Advanced Electronic Systems	2015-16		Embedded Systems (Lab Sessions)
Integrated Circuits	2013-14	Vellore Institute of Technology, Vellore, India	Electronic Circuits using Op-Amps (Lectures, Labs, Tutorials)
Semiconductor Devices and Circuits	2013-14		Transistors and Amplifier Circuits (Lectures, Labs, Tutorials)
Electric and Magnetic Circuits	2013-14		Circuit Components; Digital Circuits; Circuit Theory; AC Circuit Theory (Lectures, Labs, Tutorials)
Pattern Recognition	2012-13		(Lectures, Labs, Tutorials)
Rehabilitation Engineering	2012-13		Assistive Technologies (Lectures, Labs, Tutorials)
Graduate Courses			
Smart Technologies for Power Management	2017-18	Manchester Metropolitan University, Manchester, UK	Internet of Things (Lab Sessions)
Bio-Signal Processing	2013-14	Vellore Institute of Technology, Vellore, India	Techniques in Biomedical Signal Processing (Lectures, Labs, Tutorials)

Biomedical Sensors and Signal Conditioning	2013-14		Project Based Learning
Medical Physics and Biochemistry	2012-13		(Lectures)
Sensors and Transducers	2011-12 2010-11	Christian Medical College, Vellore	(Lectures, Labs)

TECHNICAL SKILLS

Electronic Design: Analog and Digital electronic design, Data-acquisition systems, Embedded systems (experience working with PIC, Arduino etc.), PCB design; **Programming:** C/C++, Matlab, LabView, Embedded C; **Physiological Recording:** Extensive experience in building and recording from devices physiological data including EMG, ECG, EEG, temperature, pressure; **Wireless:** IEEE 802.15.4 protocol; **Signal Processing:** Spectral Analysis, Time-frequency transforms, Pattern Recognition; **Mechatronics:** Building controllers for DC, servo and stepper motors; **Gait Analysis:** Vicon, Tekscan

RESEARCH INTERESTS

Medical Instrumentation, Biomechanics of walking, Prosthesis Control, Sensory Feedback/Artificial Sensation, Biomedical Signal Processing, Rehabilitation Engineering

RESEARCH PUBLICATIONS

Journal Publications

K.E. Chatwin, C.A. Abbott, S.M. Rajbhandari, P.N. Reddy, F.L. Bowling, A.J.M. Boulton, N.D. Reeves, An intelligent insole system with personalised digital feedback reduces foot pressures during daily life: An 18-month randomised controlled trial, Diabetes Research and Clinical Practice, Volume 181, 2021, 109091

C.A. Abbott, K.E. Chatwin, P. Foden, A.N. Hasan, C. Sange, S.M. Rajbhandari, P.N. Reddy, L. Vileikyte, F.L. Bowling, A.J.M. Boulton, N.D. Reeves, *Innovative intelligent insole system reduces diabetic foot ulcer recurrence at plantar sites: a prospective, randomised, proof-of-concept study*, The Lancet Digital Health, vol. 1, no. 6, p. e308, 2019

K. Chatwin, C.A. Abbott, P.N. Reddy, F. Bowling, A.J.M. Boulton, and N.D. Reeves, A *foreign body through the shoe of a person with diabetic peripheral neuropathy alters contralateral biomechanics: captured through innovative plantar pressure technology*, The International Journal of Lower Extremity Wounds, vol. 17, p. 125, 2018

N.R. Prabhav, A. Weightman, E. Hodson-Tole, N. Reeves, and G. Cooper, *Walking cadence affects rate of plantar foot temperature change but not final temperature in younger and older adults*, Gait and Posture, vol. 52, p. 272, 2017

A. Sait, N.R. Prabhav, V. Sekharappa, R. Rajan, N.A.N. Raj, and K.S. David, *Biomechanical comparison of short-segment posterior fixation including the fractured level and circumferential fixation for unstable burst fractures of the lumbar spine in a calf spine model*, Journal of Neurosurgery. Spine, vol. 25, no. 5, p. 602, 2016

N.R. Prabhav, A. Weightman, E. Hodson-Tole, N. Reeves, and G. Cooper, *An in-shoe temperature measurement system for studying diabetic foot ulceration etiology: preliminary results with healthy participants*, Procedia CIRP, vol. 49, p. 153, 2016

N.R. Prabhav, A. Weightman, E. Hodson-Tole, N. Reeves, and G. Cooper, *Experimental modelling of heat generation in porcine tissue to investigate the etiology of diabetic foot ulceration*, Procedia CIRP, vol. 49, p. 170, 2016

N.R. Prabhav, S.R. Devasahayam and K.S. Babu, *Implanted Myoneural Interface for Artificial Hand Control*, International Journal of Biomedical Engineering and Technology, vol. 14, no. 1, p. 13, 2014

A. Thomas, N.R. Prabhav, and G. Mathew, *A Simple, Inexpensive 1-D Haptic Tool*, International Journal of Engineering and Technology, vol. 6, no. 3, p. 220, 2014

N.R. Prabhav and S.R. Devasahayam, *Effect of Muscle Length Changes on Classification of EMG for Prosthesis Control*, International Journal of Biomedical Engineering and Technology, vol. 13, no. 2, p. 117, 2013

G.V. Kanth and N.R. Prabhav, *Abdominal hematoma detection using microwave tomography*, International Journal for Applied Engineering Research, vol. 8, no. 19, p. 2195, 2013

G. Tharion, M. Durai, S. Devasahayam, C. Solomons, K. Indirani, M. Meenakshi, N. Prabhav, and S. Bhattacharji, *Motor recovery following olfactory ensheathing cell transplantation in rats with spinal cord injury*, Neurology India, vol. 59, no. 4, p. 566, 2011

Conference Publications

N.R. Prabhav, G. Cooper, A. Weightman, E. Hodson-Tole, and N. Reeves, *How does walking influence plantar foot temperature changes in younger and older adults? Implications for people with diabetes*, Diabetes UK Conference, 8-10 March 2017, Manchester, UK

N.R. Prabhav, R. Sulaimon, G. Cooper, A. Weightman, E. Hodson-Tole, and N. Reeves, *Changes in Foot Temperature as a Function of Walking Speed*, in 25th congress of the International Society of Biomechanics, 12-15 July 2015, Glasgow, UK

A. Sharma and N.R. Prabhav, *A Portable Eye Movement Controlled Human Computer Interface for Disabled*, in National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies, 17-18 October 2014, Varanasi, India

A. Sait, S. Vijay, K.S. David, N.R. Prabhav, R. Rajan, A.N. Raj, *A Biomechanical Comparison of Short Segment Posterior Fixation including the Fractured Vertebra versus 360 degree Fixation in Unstable Burst Fractures of the Lumbar Spine in Animal Model*, in 47th Annual Conference of the Tamil Nadu Orthopaedic Association, February 7 - 9, 2014, Chennai, India

A. Sait, N.R. Prabhav, V. Shekarappa, R. Rajan, A.N. Raj, K.S. David, *A Biomechanical Comparison of Short Segment Posterior Fixation including the Fractured Vertebra versus 360 degree Fixation in Unstable Burst Fractures of the Lumbar Spine in Animal Model*, in 27th Annual Conference of Association of Spine Surgeons of India, January 23 - 26, 2014, Kolkata, India

R. Venkatesh, S. Ghosh and N.R. Prabhav, *Erb's Arm: A mechanical device to assist people affected by Erb's Palsy in writing*, International Conference on Intelligent Interactive Systems and Assistive Technologies, August 2 - 3, 2013, Coimbatore, India

K. Soman, N.R. Prabhav and H. Lekany, *Detection of Pre Movement Event - Related Desynchronization from Single Trial EEG signal*, in International Conference on Information and Communication Technologies, April 11 - 12, 2013, Thukalay, India

N.R. Prabhav, S.R. Devasahayam, and R. Ojha, *Implanted Myo-neural Interface for Upper Limb Prosthesis*, in World Congress on Medical Physics and Biomedical Engineering, September 7 - 12, 2009, Munich, Germany