VIPUL LUGADE, PHD
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SUMMARY

I am a biomechanist, engineer, and data scientist with expertise in software development, managing various research groups and collaborators, mentoring students, as well as the utilization of diverse analysis techniques to solve a variety of problems related to physical systems. I have demonstrated the ability to solve difficult problems across a range of research topics with my current research primarily focused on improving health outcomes through the development of non-invasive mobile health care technology using remote sensing of human movement. Current topics of interest include body-worn sensors, motion analysis to diagnose concussions in adolescents and falls in the elderly, and the utilization of diverse large-

Lab Intern June 1997 - Aug 1997

Optical Physics Lab, University of Oregon, *Eugene, OR*

- Generated animated images using a helium-neon laser and a programmable acousto-optic modulator.

EDUCATION

Whitaker International Scholar Oct 2013 - Oct 2015

Chiang Mai University, Chiang Mai, Thailand

Postdoctoral Research Fellow

- Evaluated differences in gait strategies among US and Thai elderly adults.
- Investigated effects of mindfulness meditation on gait and cognitive performance during dual-task walking.

Mayo Clinic Sept 2011 - Sept 2013

Rochester, MN

Postdoctoral Research Fellow

- Detected and validated free-living activity and posture using accelerometers.
- Defined dynamic measures of stability during gait.
- Assessed effect of marker misplacement at the knee on gait kinematics.
- Validated center of pressure using an instrumented treadmill.

University of Oregon Dec 2007 - July 2011

Eugene, OR

Ph.D. in Biomechanics

- Gait assessment of elderly adults.
- Defined interaction of center of mass and base of support during gait.
- Use of k-means clustering, Gaussian mixture models, and artificial neural networks to discriminate healthy and balance impaired older adults.
- Dual-task evaluation of elderly adults with balance impairment.

University of Oregon Sept 2005 - Dec 2007

Eugene, OR

M.S. in Biomechanics

- Assessed longitudinal performance of adults undergoing total hip arthroplasty.
- Evaluated balance control, gait asymmetry and gait kinematics of adults prior to and following an anterior or lateral approach total hip arthroplasty.

Harvey Mudd College Sept 1998 - May 2002

Claremont, CA

B.S. in Engineering

RESEARCH SUPPORT

1 R43 NS108823-01A1, NINDS Oct 2019 - Mar 2021

Principal Investigator: Vipul Lugade, Ph.D.

A Novel Smartphone-based Tool to Quantify Dual-task Gait Performance for Concussion Assessment

Whitaker International Scholar Oct 2013 - Oct 2015

Principal Investigator: Vipul Lugade, Ph.D.

The Effect of Mindfulness Meditation on Cognitive Performance and Balance Control during Gait

5 T32 HD007447 20, NICHD Sept 2011 - Sept 2013
Principal Investigator: Jeffrey R. Basford, M.D., Ph.D.
Role: Postdoctoral Research Fellow
Mayo Rehabilitation Research Training Grant

Betty Foster McCue Graduate Scholarship 2010
Principal Investigator: Vipul Lugade
Functional Decline and Intervention during Aging and its Effect on Fall Risk in the Elderly

Jan Broekhoff Graduate Scholarship 2009
Principal Investigator: Vipul Lugade
Balance Control during Gait in the Elderly

Student Dissertation Award, International Society of Biomechanics 2009
Principal Investigator: Vipul Lugade
Assessment of Fall Risk using Postural Control and Stability during Gait

1 R01 AG021598-01, NIH 2005-2010
Principal Investigator: Marjorie Woollacott, Ph.D.
Role: Graduate Teaching Fellow
Age Related Changes in Posture and Movement

AWARDS AND HONORS

2017 Outstanding reviewer

Editorial Board, Frontiers in Sports and Active Living
2018 - Present

Invited Lecturer
Jan 2018 - Special Topics Data Processing and MATLAB
Department of Physical Therapy, Chiang Mai University, *Chiang Mai, Thailand*
Feb 2017, Jan 2018 - Smartphone-based Measurement Tools
Department of Physical Therapy, Chiang Mai University, *Chiang Mai, Thailand*
Nov 2016 - Biomechanics of Locomotion.
Department of Physical Therapy, Chiang Mai University, *Chiang Mai, Thailand*
Feb 2015, Jan 2016, Feb 2017 - Instrumentation and Biomechanical Assessment of Elderly Fallers
Department of Physical Therapy, Chiang Mai University, *Chiang Mai, Thailand*

PEER-REVIEWED PUBLICATIONS

Lugade V, Kuntapun J, Prupetkaew P, Boripuntakul S, Verner E, Silsupadol P. *Three-day remote monitoring of gait using a smartphone among young adults and older adults with and without a history of falls.* J Aging Phys Act, 2021, Aug: 1-8.

Tabsuri T, Thawinchai N, Peansukmanee S, Lugade V. *Trunk and pelvis biomechanical responses in children with cerebral palsy and with typical development during horseback riding.* Gait Posture, 2021, 89:115-119.

Howell D, Seehusen C, Wingerson M, Wilson J, Lynall R, Lugade V. *Reliability and minimal detectable change for jump-landing clinical assessment: implications for concussion assessment.* J App Biomech, 2021, July:1-8.

Kuntapun J, Silsupadol P, Kamnardsiri T, Lugade V. *Smartphone monitoring of gait and balance during irregular surface walking and obstacle crossing.* Front Sports Act Living, 2020.

Breloff S, Bachman J, Lugade V, Stuka A. *The effect of blood glucose on qlm0GmQqs0GJTJETQq0 0 0 rgreW*nQq3Gm*

Wongcharoen S, Munkhetvit P, Sungkarat S, Lugade V, Silsupadol P. *The effect of walking task contexts on dual-task walking performance among older adults.* Thai J Phys Ther, 2017: 103-113.

Jensen E, Lugade V, Crenshaw J, Kaufman K. *A principal component analysis approach to correcting the knee flexion axis during gait.* J Biomech, 2016. 49(9): 1698-1704.

Fortune E, Lugade V, Amin S, Kaufman K. *Step detection using multi- versus single tri-axial accelerometer-based systems.* Phys Meas, 2015, 36(12):2519.

Lugade V, Chen T, Erickson C, Fujimoto M, San Juan J, Karduna A, Chou L-S. *Comparison of an Electromagnetic and Optical System during Dynamic Motion.* Biomedical Engineering, 2015, 25(5): 1550041.

Lugade V, Kaufman K. *Center of pressure trajectory during gait: a comparison of four foot positions - Short Communication.* Gait Posture, 2014. 40(4): 719-722.

Fortune E, Lugade V, Kaufman K. *Posture and Movement Classification: The Comparison of Tri-Axial Accelerometer Numbers and Anatomical Placement.* J Biomech Eng-T ASME, 2014. 136(5): 051003.

Lugade V, Farley A, Lin V, Chou L-S. *An Artificial Neural Network Estimation of Gait Balance Control in the Elderly using Clinical Evaluations.* PLOS One, 2014. 9(5).

Morrow M, Hurd W, Fortune E, Lugade V, Kaufman K. *Accelerations of the Waist and Lower Extremities Over a Range of Gait Velocities to Aid in Activity Monitor Selection for Field-Based Studies.* J Appl Biomech, 2014, 30(4): 581-585.

Lugade V, Kaufman K. *Dynamic stability margin using a marker based system and Tekscan: A comparison of four foot positions during gait Short Communication.* Gait Posture, 2014. 40: 252-254.

Fortune E, Lugade V, Morrow M, Kaufman K. *Validity of using tri-*