

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

Principal Investigator: Jeffrey R. Basford, M.D., Ph.D.

Sept 2011 - Sept 2013

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.

Tabhuri 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 smartphone high-resolution motion analysis: 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.

Brelloff S, Bachman J, Lugade V, Stuka A. *The effect of blood glucose on gait and balance during obstacle crossing*. J App Biomech, 2021, July:1-8.

- 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-*