

Jason K. Moore

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CITIZENSHIP	United States of America	
LANGUAGE	English [US] (mother tongue), Spanish [GU] (beginner), Dutch [NL] (beginner)	
RESEARCH INTERESTS	Multibody dynamics, bicycle dynamics, human biomechanics, human operator control, gait control identification, exoskeleton control, vehicle handling qualities, vehicle dynamics, control systems, aircraft control, aircraft dynamics, appropriate technology, human powered machines, system identification, software engineering, wind tunnel experimentation, computational reproducibility, open science, optimal control, machine design, computer aided algebra	
ACADEMIC POSITIONS	<p>Assistant Professor August 2020 to Present <i>BioMechanical Engineering Department, Delft University of Technology</i> (Chairs: H. E. J. Veeger [2020-Present])</p> <p>Assistant Professor of Teaching September 2015 to June 2020 <i>Mechanical and Aerospace Engineering Department, University of California, Davis</i> (Chairs: C. P. van Dam [2015-2016], Stephen K. Robinson [2016-2019], Cristina E. Davis [2019-2020])</p> <p>Postdoctoral Research Associate July 2013 to August 2015 <i>Human Motion and Control Laboratory, Cleveland State University</i> (PI: Antonie J. van den Bogert)</p> <p>Visiting NCSRR Scholar August 2014 <i>Neuromuscular Biomechanics Laboratory, Stanford University</i> (PI: Scott L. Delp)</p> <p>Postdoctoral Research Programmer January 2013 to June 2013 <i>Institute for Transportation Studies, University of California, Davis</i> (PI: Tai Stillwater)</p> <p>Lecturer (Unit 18) September 2012 to December 2012 <i>Mechanical and Aerospace Engineering Department, University of California, Davis</i> (Chair: C.P. van Dam)</p> <p>Graduate Student Researcher September 2009 to August 2012 <i>Sports Biomechanics Laboratory, University of California, Davis</i> (PIs: Mont Hubbard, Ronald Hess)</p> <p>Visiting Fulbright Scholar August 2008 to August 2009 <i>Bicycle Dynamics Laboratory, Delft University of Technology</i> (PI: A.L. Schwab)</p> <p>Teaching Assistant March 2006 to June 2007 <i>Mechanical and Aerospace Engineering Department, University of California, Davis</i> (Instructors: Jim Schaaf, Rida Farouki)</p>	

EDUCATION

University of California at Davis, Davis, California USA

Ph.D., Mechanical and Aerospace Engineering, September 14, 2012

- Dissertation: Human Control of A Bicycle
- Dissertation Topic: Bicycle dynamics, control, and handling qualities
- Areas of Study: Multibody dynamics, control systems, biomechanics, and system identification
- Advisors: Mont Hubbard, Ron A. Hess, Arend L. Schwab
- Lab: UCD Sports Biomechanics Lab, TU Delft Bicycle Dynamics Lab

M.Sc., Mechanical and Aeronautical Engineering, June 14, 2007

- Advisor: Mont Hubbard
- Area of Study: Multibody dynamics, control systems, and machine design
- Lab: Sports Biomechanics Lab

Old Dominion University, Norfolk, Virginia USA

B.Sc., Mechanical Engineering, December 2004

- *Magna cum Laude*
- Machine Design Specialization
- Minor in Mathematics
- Minor in Philosophy and Religious Studies

Tunstall High School, Dry Fork, Virginia USA

Advanced Diploma, May 2000

- Graduated with Honors

PROFESSIONAL ACCREDITATION

Passed the Fundamentals of Engineering Exam in Virginia

RESEARCH EXPERIENCE

University of California at Davis, Davis, California USA

Faculty

September 2015 to Present

- Created and led the [Laboratorium of Marvelous Mechanical Motum](#)
- Safe ski jump design: mentored one undergraduate in developing methods for designing, measuring, and analyzing ski jumps for minimal impact velocity using interactive web applications and accurate GPS measures, see [skijumpdesign.info](#).
- Smartphone rowing data backed coaching: Worked with local startup and six undergraduates in a data science and dynamics project to predict rowing motions from smartphone data
- Optimal bicycle design: mentored one post-graduate and six undergraduates students in an experimental study on bicycle handling, developed and optimization algorithm to discover optimal handling bicycle designs
- Design of an efficient human powered irrigation pump: mentored one graduate student and two undergraduate students in this research/design effort, partnered with World Bicycle Relief and Buffalo Bikes
- Identification of human standing control: mentored ten undergraduates in the design of a double pendulum balancing robot for balance control studies
- Member of 4 MSc committees
- Mentored 4 graduate students, 20+ undergraduates

Postdoctoral Researcher and Programmer

February 2013 to June 2013

- Developed a cross platform smart phone/tablet application for real-time automobile driver fuel economy feedback. This application was used to conduct an experiment with 200 drivers in San Francisco on driver behavior: [Smart-Drive](#)

- Won \$2K in the first Phase of the White House’s Apps for Vehicles Challenge with simpler version of SmartDrive for consumer use, Drive5
- Designed statistical Kalman filter based fuel economy prediction algorithms based on smart phone sensor data.

Graduate Student Researcher **September 2005 to August 2012**

- Graduate Student Researcher at the Sports Biomechanics Lab.
- Member of UC Davis’s Institute for Transportation Studies.
- Co-wrote and co-managed a [three year Nation Science Foundation grant](#).
- Developed a custom instrumented bicycle and performed control experiments to characterize the human control system in the bicycling balancing and tracking task.
- Developed numerous open source software packages.
- Mentored five graduate students during summer internships in experimental, theoretical, and computational dynamics.
- Mentored approximately ten undergraduate student interns in a lab setting.
- Mentored four undergraduates in their senior design project.
- Led multiple tours of the Sport Biomechanics Lab.
- Involved in the graduate student recruitment week.
- Designed and administered the lab website.
- Co-founded Davis Open Science.
- Co-wrote and awarded two Google Summer of Code grants (2011, 2012).
- Organized weekly lab meetings.
- Refereed an article for Vehicle System Dynamics.
- Organized and co-chaired both an invited and special session at the 2012 ASME DSCC conference.
- Featured in “Science of Balancing a Bike” by the UC Office of the President.
- Featured in “Science of Riding a Bicycle” video by KQED Quest.

Biomedical Research Engineer **August 2007 to August 2009**

- Designed and supervised the fabrication of a cell shearing device for the UCD Biomedical Passerini Lab.

Cleveland State University, Cleveland, Ohio USA

Post Doctoral Research Associate **July 2013 to August 2015**

- PI: Ton van den Bogert
- Lab: Human Motion and Control Lab
- Identified control schemes for exoskeletons in human walking using data driven approaches.
- Developed and ran multi-subject gait experiments with a modern gait lab.
- Developed software for gait data analysis and simulation.
- Developed human walking computational models.
- Mentored several undergraduate and graduate students in research projects.
- Mentored undergraduate students in their senior design projects.
- System administrator for the lab web site.
- Developed a open data paper for a very large gait dataset.

Delft University of Technology, Delft, Zuid-Holland Netherlands

Fulbright Visiting Scholar and Researcher **August 2008 to August 2009**

- Ph.D. researcher at the Bicycle Dynamics Laboratory.
- Co-developed an instrumented bicycle with video logging and accompanying software.
- Used the instrumented bicycle in various experiments on and off the treadmill resulting in two conference papers.
- Participated in canceled gyro, negative trail bicycle experiments that eventually resulted a Science publication.

- Lead motion capture study on bicycle/rider kinematics resulting in two conference papers and one peer reviewed journal article.
- Developed a systematic method of measuring the physical properties of a bicycle and rider resulting in two conference papers.
- Gave a colloquium talk on the year's research.
- Researched the bicycle transportation system in the Netherlands, kept an informal blog, attended the Velo-City Brussels conference, and gave a talk on the subject at the UCD Institute of Transportation Studies.

GRADUATE
COMMITTEE
MEMBERSHIPS

Politecnico Milano

- Dario Savaresi, PhD, 2021
- Alessandra Duz, PhD, 2021

Delft University of Technology

- Alex Paulwels, MSc, 2021
- Gert Galis, MSc, 2021
- Jelle Kelbling, MSc, 2020
- George Dialynas, PhD, 2020
- Koen Wendel, MSc, 2020

University of California, Davis

- Scott Kresie, MSc, 2021
- Abraham McKay, MSc, 2018 [Chair]
- Farhad Ghadamli, MSc, 2017
- Sui Nam Chan, MSc, 2017

TEACHING
EXPERIENCE

University of California at Davis, Davis, California USA

Assistant Professor of Teaching MAE

September 2015 to Present

- Taught "Analysis, Simulation and Design of Mechatronic Systems", Winter/Fall 2019 & Winter 2020, 40-60 students, upper level elective, 1 teaching assistant, developed new simulation guide, integrated active learning problems during class, created Segway control module, redesigned computational lab assignments
- Taught "Vehicle Dynamics", Fall 2018 & Spring 2020, 15-40 students, upper level elective, 1 teaching assistant, integrated new objective based assessment for homeworks and enhanced the single track vehicle lectures
- Taught "Introduction to Mechanical Vibrations", Fall 2016/2017 & Winter 2020, 20-40 students, upper level elective, 1 teaching assistant, redesigned entire course second time teaching it to focus on active learning and computational thinking, developed an interactive open access textbook
- Taught Multibody Dynamics, Fall 2017/2019, 10-20 students, graduate course, custom software, PyDy, developed and used in the course
- Co-taught Mechanical Systems Design Project, Winter/Spring 2016/2017/2018/2019, 140-160 students, 4 teaching assistants, capstone design course, mentored 90+ projects for industry clients, developed exchange program with Meijo University in Japan
- Taught Mechanical and Aerospace Engineering Graduate Seminar, Spring 2017, invited 10 guest speakers for 1 hour seminars
- Taught Mechanical Design, Fall 2015/2016, required upper level course, 20-35 students, introduced new design project, active learning
- Taught modules in the high school summer program COSMOS in the transportation track, Summer 2018/2019
- Participated in the Engineering Education Learning Community
- Mentored 10 teaching assistants.

Lecturer

August 2012 to December 2012

- Taught “Engineering Graphics in Design”, 120 students, 4 Teaching Assistants
- Topics: Design, Sketching, Drawing, Drafting, Solid Modeling, CAD

Graduate Student Researcher **September 2005 to August 2012**

- Mentored five graduate students during summer internships in experimental, theoretical, and computational dynamics.
- Mentored approximately ten undergraduate student interns in a lab setting.
- Mentored four undergraduates in their senior design project.
- Led multiple tours of the Sport Biomechanics Lab.

Machine Shop Supervisor **January 2007 to June 2008**

- Supervised the College of Engineering student machine shop.
- Helped students with machining and fabrication projects.
- Taught the shop safety class.
- Fabricated various doodads and gizmos for the shop.
- Organized the shop.
- Worked on design projects for various campus research groups.

Teaching Assistant **March 2006 to June 2007**

- EME 150B, Mechanical Design (Spring 2006): Worked with student groups during the discussion period on their design projects, graded homework assignments, and held weekly office hours.
- EME 50, Manufacturing Processes (Fall 2006 and Winter 2007): Taught hands-on machining and fabrication during weekly lab sections, graded homework assignments and tests, and organized the end of quarter party.
- ENG 4, Engineering Graphics (Spring 2007): Led lab sections with lectures in sketching and 2D/3D computer aided design with modern CAD software.

Davis Open Science Co-founder **February 2010 to June 2013**

- Co-founded the graduate student group.
- Co-hosted several seminars and panels with prominent speakers in Open Science.
- Worked with various faculty and staff on open science projects.
- Led workshops on open science topics.

Action Research Team Facilitator **March 2007 to December 2007**

- Led group of students in the design and construction of a pedal powered desk laptop charging station.
- Competed in Google and Specialized’s Innovate or Die Contest.
- The project was featured in many articles and news broadcasts.
- Featured in the book [Human Powered Home](#) by Tamara Dean.

Assistant Action Research Team Facilitator **March 2006 to June 2006**

- Co-led a group of students through the process of starting a mock non-profit group.

Reader **September 2006 to December 2006**

- Graded mechanical design assignments (EME 150B).

Software Carpentry, Everywhere, Planet Earth

Volunteer Instructor **January 2015 to now**

- Lead multiple workshops on computation for scientists and engineers.
- Developed lesson plans.
- Passed the instructor certification.

Cleveland State University, Cleveland, Ohio USA

Post Doctoral Research Associate

July 2013 to December 2014

- Mentored graduate students.
- Mentored undergraduate students in their senior design projects.
- Led “Open Source Code Nights” workshops with the undergraduate IEEE group.
- Gave tutorials on multibody dynamics and control to graduate and undergraduate students.

Delft University of Technology, Delft, Zuid-Holland Netherlands

Fulbright Visiting Scholar and Researcher

August 2008 to August 2009

- Mentored undergraduate students in their senior design projects.

GRANTS AND
AWARDS

United States Department of Education

- Expanding the LibreTexts Project into the Next-Generation Hub for Construction, Dissemination, and Usage of Open Educational Resource Textbooks, September 2018-September 2021, CO-PI, \$5M.

UC Davis Global Affairs

- Influence of Culture in Mechanical Design , PI, 2018-2019, \$24k.

Center for Educational Effectiveness

- Development of an Interactive Textbook Backed by Cloud Infrastructure to Pilot Active Computational Learning in an Upper Level Mechanical Vibrations Engineering Course , PI, 2017-2018, \$22k.

National Center of Simulation in Rehabilitation Research, Stanford University

- 2014 NCSRR Visiting Scholarship, \$8k.

SAGE Publishing

- 2013 Best Paper Award, Journal of Multibody Dynamics, \$400.

U.S. General Services Administration

- White House Apps for Vehicles Challenge: Phase 1, 2013, \$2k.

2012 Dynamic Systems and Control Conference

- Best paper in the Single Track Vehicle Dynamics and Control Session, 2012.

National Science Foundation

- NSF Standard Grant: Human Control of Bicycle Dynamics with Experimental Validation and Implications for Bike Handling and Design, Co-Author, 2009-2012, \$300k.

U.S. Department of State

- Fulbright Grant to the Netherlands, 2008-2009, \$10k.

University of California, Davis

- Summer Graduate Student Researcher Award, 2010
- Campus Sustainability Grant (Human Powered Utility Vehicle Pilot Program), 2008
- Campus Sustainability Grant (Davis Bike Church Physical Space Renovation), 2008
- Graduate Student Association Travel Award, 2008
- Institute for Transportation Studies Travel Award, 2008
- Campus Sustainability Grant (Pedal Powered Charging Table), 2007
- Joseph Beggs Fellowship for Kinematics, 2006–2007

- MAE Department Fellowship, UC Davis, 2005–2006

Old Dominion University

- Governor’s Technology Scholarship, Full Tuition, \$16k, 2000–2004.

PROPOSALS UNDER REVIEW

- SymPy: Improving Foundational Open Source Symbolic Mathematics for Science, Essential Open Source Software for Science, Cycle 4, Chan Zuckerberg Initiative, 2021, \$345K.

REJECTED PROPOSALS

- Bicycle Dynamics Analysis App, TU Delft Digital Competence Center Support, PI, 2021, around €5K.
- Learning to Bicycle with Robotic Assistance, TU Delft 3mE Cohesion Proposals, CO-PI, 2021, €66K.
- Collaborative Research: Dissemination of the LibreTexts Libraries through Expansion and Training in Digital Interfaces to Enhance Science Education across the Nation, National Science Foundation, CO-PI, 2018-2022, \$3M. [National Science Foundation](#)
- Collaborative Research: SI2-SSI: Infrastructure for Cross-Disciplinary Scientific Computation Through Optimized Symbolic Code Generation with SymPy, National Science Foundation, CO-PI, 2017-2019, \$3M. [National Science Foundation](#)

JOURNAL PUBLICATIONS

- [1] Xiaodong Qian, Jason K. Moore, and Deb Niemeier. “Predicting Bicycle Pavement Ride Quality: Sensor-Based Statistical Model”. In: *Journal of Infrastructure Systems* 26.3 (2020), p. 04020033. DOI: 10.1061/(ASCE)IS.1943-555X.0000571.
- [2] Bryn Cloud et al. “Adaptive Smartphone-Based Sensor Fusion for Estimating Competitive Rowing Kinematic Metrics”. en. In: *PLOS ONE* 14.12 (Dec. 2019), e0225690. ISSN: 1932-6203. DOI: 10.1371/journal.pone.0225690.
- [3] Jason K. Moore and Mont Hubbard. “Skijumpdesign: A Ski Jump Design Tool for Specified Equivalent Fall Height”. In: *The Journal of Open Source Software* 3.28 (Aug. 2018), p. 818. DOI: 10.21105/joss.00818.
- [4] Jason K. Moore and Antonie van den Bogert. “Opty: Software for Trajectory Optimization and Parameter Identification Using Direct Collocation”. In: *Journal of Open Source Software* 3.21 (Jan. 2018), p. 300. DOI: 10.21105/joss.00300.
- [5] Aaron Meurer et al. “SymPy: Symbolic Computing in Python”. In: *PeerJ Computer Science* 3.e103 (Jan. 2017). ISSN: 2376-5992. DOI: 10.7717/peerj-cs.103.
- [6] Jason K. Moore, Sandra K. Hnat, and Antonie J. van den Bogert. “An Elaborate Data Set on Human Gait and the Effect of Mechanical Perturbations”. In: *PeerJ* 3.e918 (Apr. 2015). ISSN: 2167-8359. DOI: 10.7717/peerj.918.
- [7] Chris Dembia, Jason K. Moore, and Mont Hubbard. “An Object Oriented Implementation of the Yeadon Human Inertia Model”. In: *F1000Research* 3.233 (Apr. 2015). DOI: 10.12688/f1000research.5292.2.
- [8] A. L. Schwab et al. “Rider Control Identification in Bicycling Using Lateral Force Perturbation Tests”. In: *Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics* 227.4 (Aug. 2013). 2013 SAGE Best Paper Award, pp. 390–406. ISSN: 1464-4193, 2041-3068. DOI: 10.1177/1464419313492317.

- [9] Ronald Hess, Jason K. Moore, and Mont Hubbard. “Modeling the Manually Controlled Bicycle”. In: *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans* 42.3 (Feb. 2012), pp. 545–557. ISSN: 1083-4427, 1558-2426. DOI: 10.1109/TSMCA.2011.2164244.
- [10] Jason K. Moore et al. “Rider Motion Identification during Normal Bicycling by Means of Principal Component Analysis”. en. In: *Multibody System Dynamics* 25.2 (Feb. 2011), pp. 225–244. ISSN: 1384-5640, 1573-272X. DOI: 10.1007/s11044-010-9225-8.

BOOKS & THESES

- [1] Lorena A. Barba et al. *Teaching and Learning with Jupyter*. <https://jupyter4edu.github.io/jupyter-edu-book/>. Nov. 2018.
- [2] Jason K. Moore and Kenneth Lyons. *Resonance: Learning Mechanical Vibration Engineering Through Computation*. <https://moorepants.github.io/resonance/>. Dec. 2017.
- [3] Jason K. Moore. “Human Control of a Bicycle”. <http://moorepants.github.io/dissertation>. Doctor of Philosophy. Davis, CA: University of California, Aug. 2012.

CONFERENCE PAPERS

- [1] Jason K Moore and Mont Hubbard. “Expanded Optimization for Discovering Optimal Lateral Handling Bicycles”. en. In: *Bicycle and Motorcycle Dynamics 2019: Symposium for Dynamics and Control of Single Track Vehicles*. Padua, Italy: Figshare, 2019, p. 12. DOI: 10.6084/m9.figshare.9942938.v1.
- [2] Trevor Z. Metz and Jason K. Moore. “Design of an Electric Bicycle Speed Controller”. In: *Bicycle and Motorcycle Dynamics 2019: Symposium on the Dynamics and Control of Single Track Vehicles*. Padua, Italy: Figshare, 2019. DOI: 10.6084/m9.figshare.9937091.v1.
- [3] Roy Gilboa et al. “Practical Realization of a Theoretical Optimal-Handling Bicycle”. en. In: *Bicycle and Motorcycle Dynamics: Symposium on Dynamics and Control of Single Track Vehicles*. 2019, p. 11. DOI: 10.6084/m9.figshare.9883328.v1.
- [4] Jason K. Moore, Mont Hubbard, and Ronald A. Hess. “Optimal Bicycle Design to Maximize Handling and Safety”. In: *Proceedings of the 6th Annual International Cycling Safety Conference*. Davis, CA, USA, Sept. 2017. DOI: 10.6084/m9.figshare.5405242.v1.
- [5] Scott W. Kresie et al. “Experimental Validation of Bicycle Handling Prediction”. In: *Proceedings of the 6th Annual International Cycling Safety Conference*. Davis, CA, USA, Sept. 2017. DOI: 10.6084/m9.figshare.5405233.v1.
- [6] Jason Moore, Mont Hubbard, and Ronald A. Hess. “An Optimal Handling Bicycle”. In: *Proceedings of the 2016 Bicycle and Motorcycle Dynamics Conference*. Figshare, Sept. 2016. DOI: 10.6084/m9.figshare.3806310.v1.
- [7] Jason K. Moore and Mont Hubbard. “Methods for Elimination of Crosstalk and Inertial Effects in Bicycle and Motorcycle Steer Torque Estimation”. In: *Proceedings of Bicycle and Motorcycle Dynamics: Symposium on the Dynamics and Control of Single Track Vehicles*. Narashino, Chiba, Japan, Nov. 2013.
- [8] Jason K. Moore and Mont Hubbard. “Identification of Open Loop Dynamics of a Manually Controlled Bicycle-Rider System”. In: *Proceedings of Bicycle and Motorcycle Dynamics: Symposium on the Dynamics and Control of Single Track Vehicles*. Narashino, Chiba, Japan, Nov. 2013.
- [9] Ronald A. Hess and Jason K. Moore. “Estimating Parameters of the Structural Pilot Model Using Simulation Tracking Data”. In: *AIAA Guidance, Navigation, and Control Conference*. Aug. 2013.

- [10] Gilbert Gede et al. “Constrained Multibody Dynamics With Python: From Symbolic Equation Generation to Publication”. In: *Volume 7B: 9th International Conference on Multibody Systems, Nonlinear Dynamics, and Control*. DETC2013-13470. Portland, Oregon, USA, Aug. 2013. ISBN: 978-0-7918-5597-3. DOI: 10.1115/DETC2013-13470.
- [11] Arend Schwab, Peter de Lange, and Jason K. Moore. “Rider Optimal Control Identification in Bicycling”. In: *Proceedings of the 5th Annual Dynamic Systems and Control Conference and 11th Annual Motion and Vibration Conference*. <http://bicycle.tudelft.nl/schwab/Publications/schwab2012riderB.pdf>. Fort Lauderdale, Florida, USA: ASME, Oct. 2012.
- [12] A. L. Schwab et al. “Rider Control Identification in Bicycling, Parameter Estimation of a Linear Model Using Lateral Force Perturbation Tests”. In: *Proceedings of the IMSD2012 - The 2nd Joint International Conference on Multibody System Dynamics*. Stuttgart, Germany., May 2012.
- [13] Jason K. Moore et al. “An Accurate Method of Measuring and Comparing a Bicycle’s Physical Parameters”. In: *Proceedings of Bicycle and Motorcycle Dynamics: Symposium on the Dynamics and Control of Single Track Vehicles*. Delft, Netherlands, Oct. 2010.
- [14] Dale L. Peterson et al. “Low-Power, Modular, Wireless Dynamic Measurement of Bicycle Motion”. In: *Procedia Engineering*. Vol. 2. The Engineering of Sport 8 - Engineering Emotion. July 2010, pp. 2949–2954. DOI: 10.1016/j.proeng.2010.04.093.
- [15] Jason K. Moore et al. “Statistics of Bicycle Rider Motion”. In: *The Engineering of Sport 8 - Engineering Emotion*. Vol. 2. The Engineering of Sport 8 - Engineering Emotion. July 2010, pp. 2937–2942. DOI: 10.1016/j.proeng.2010.04.091.
- [16] Jason K. Moore et al. “A Method for Estimating Physical Properties of a Combined Bicycle and Rider”. In: *Proceedings of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, IDETC/CIE 2009*. San Diego, CA, USA: ASME, Aug. 2009. DOI: 10.1115/DETC2009-86947.
- [17] J. D. G. Kooijman, A. L. Schwab, and Jason K. Moore. “Some Observations on Human Control of a Bicycle”. In: *Proceedings of the ASME 2009 International Design and Engineering Technical Conferences & Computers and Information in Engineering Conference*. ASME, Aug. 2009. DOI: 10.1115/DETC2009-86959.
- [18] J. K. Moore, J. D. G. Kooijman, and A. L. Schwab. “Rider Motion Identification during Normal Bicycling by Means of Principal Component Analysis”. In: *Proceedings of Multibody Dynamics 2009, ECCOMAS Thematic Conference*. Ed. by K. Arczewski, J. Fraćzek, and M. Wojtyra. Warsaw, Poland, June 2009.
- [19] Jason Moore and Mont Hubbard. “Parametric Study of Bicycle Stability”. In: *The Engineering of Sport 7*. Ed. by Margaret Estivalet and Pierre Brisson. Vol. 2. Springer, 2008. DOI: 10.1007/978-2-287-99056-4_39.

PREPRINTS

- [1] Bryn Cloud et al. “Adaptive Smartphone-Based Sensor Fusion for Estimating Competitive Rowing Kinematic Metrics”. In: (Dec. 2018). Preprint, Version 1. DOI: 10.31224/osf.io/nykuh.
- [2] Jason K Moore, Sandra K. Hnat, and Antonie J. van den Bogert. “An Elaborate Data Set on Human Gait and the Effect of Mechanical Perturbations”. In: *PeerJ PrePrints* 3.e700v4 (Apr. 2015). Preprint. ISSN: 2167-9843. DOI: 10.7287/peerj.preprints.700v2.

- [3] Jason K. Moore and Mont Hubbard. “Kinetic and Kinematic Measurements from an Instrumented Bicycle during Different Maneuvers on and off the Treadmill”. <https://github.com/moorepants/bicycle-data-paper>. Aug. 2014.
- [4] Jason K. Moore and Antonie J. van den Bogert. “Perturbed Standing Controller Parameter Identification: A Comparison of Methods”. <https://github.com/csu-hmc/inverted-pendulum-sys-id-paper>. Aug. 2014.
- [5] Jason K. Moore and Antonie J. van den Bogert. “Direct Identification of Human Gait Control”. <https://github.com/csu-hmc/gait-control-direct-id-paper>. Aug. 2013.

CONFERENCE
ABSTRACTS

- [1] Petros Abraha, Jason K. Moore, and Shigemichi Ohshima. “Design Without Borders: Influence of Cultural Exchange on Machine Design and Engineering Careers”. In: *ASEE Pacific Southwest 2020*. Under review. Davis, CA, USA, 2020.
- [2] Xiaodong Qian, Wei Ma, and Jason K. Moore. “Analysis of Adoption of Intelligent Transportation Technologies to Improve Cyclist Safety”. In: *8th Annual International Cycling Safety Conference*. Abstract, Retracted. Brisbane, Australia, Nov. 2019.
- [3] Bryn Cloud et al. “Accessible, Open-Source Computational Analysis and Design of Terrain Park Ski Jumps”. In: *23rd International Congress on Snow Sports Trauma and Safety*. Abstract. Squaw Valley, California, USA, Apr. 2019.
- [4] Jason K Moore, Mont Hubbard, and Ronald A Hess. “Expanded Optimization for Discovering Optimal Lateral Handling Bicycles”. en. In: *Bicycle and Motorcycle Dynamics 2019*. Abstract. 2019, p. 2.
- [5] Trevor Metz and Jason K Moore. “Design of an Electric Bicycle Speed Controller”. en. In: *Bicycle and Motorcycle Dynamics 2019*. Abstract. Padova, Italy, 2019, p. 2.
- [6] Roy Gilboa et al. “Practical Realization of a Theoretical Optimal-Handling Bicycle”. en. In: *Bicycle and Motorcycle Dynamics 2019*. Abstract. 2019, p. 2.
- [7] Bryn Cloud et al. “Adaptive Smartphone-Based Sensor Fusion for Estimating Competitive Rowing Kinematic Metrics”. In: *XXVII Congress of the International Society of Biomechanics & 43rd Annual Meeting of the American Society of Biomechanics*. Abstract, Retracted. Calgary, Canada, 2019.
- [8] Jason K. Moore and Antonie J. van den Bogert. “Quiet Standing Control Parameter Identification with Direct Collocation”. In: *XV International Symposium on Computer Simulation in Biomechanics*. <https://github.com/csu-hmc/ISBTGCS2015>. Edinburgh, UK, July 2015.
- [9] Jason K. Moore, Sandra K. Hnat, and Antonie J. van den Bogert. “Identification of Human Control during Perturbed Walking”. In: *Dynamic Walking*. <https://github.com/moorepants/DW2014>. Zurich, Switzerland, June 2014.
- [10] Jason K. Moore, Sandra K. Hnat, and Antonie J. van den Bogert. “Identification of Human Control during Perturbed Walking”. In: *Midwest American Society of Biomechanics Regional Meeting*. <https://github.com/moorepants/MASB2014>. Akron, Ohio, USA, Mar. 2014.
- [11] Mont Hubbard et al. “Human Control of Bicycle Dynamics with Experimental Validation and Implications for Bike Handling and Design”. In: *Proceedings of 2011 NSF Engineering Research and Innovation Conference*. Jan. 2011.

- [12] Jason K. Moore, Dale L. Peterson, and Mont Hubbard. “Influence of Rider Dynamics on the Whipple Bicycle Model”. In: *Proceedings of the 11th International Symposium on Computer Simulation in Biomechanics*. https://www.researchgate.net/publication/216750976_Influence_of_rider_dynamics_on_the_Whipple_bicycle_model. Tainan, Taiwan, June 2007.

BLOG POSTS

- [1] Jason K. Moore and Kenneth Lyons. *Using Computational Thinking to Teach Mechanical Vibrations*. <http://engineering.ucdavis.edu/eelc/using-computational-thinking-to-teach-mechanical-vibrations/>. Apr. 2018.
- [2] Jason K. Moore. *Learning Mechanical Design Through Lightweight Prototyping*. <http://engineering.ucdavis.edu/eelc/learning-mechanical-design-through-lightweight-prototyping/>. Feb. 2017.

SOFTWARE

- [1] Jason K. Moore, Mont Hubbard, and Bryn Cloud. *Skijumpdesign: A Ski Jump Design Tool for Equivalent Fall Height*. <https://gitlab.com/moorepants/skijumpdesign>. Dec. 2017.
- [2] Jason K. Moore and Kenneth Lyons. *Resonance: A Python Package for Mechanical Vibration Analysis*. University of California, Davis. <https://github.com/moorepants/resonance/>. July 2017.
- [3] Ian Kyle, Jason K. Moore, and Maegen Simmonds. *Agricultural Field Statistics Package*. <https://github.com/ucd-ipo/agroft>. 2016.
- [4] Jason K. Moore and Antonie J. van den Bogert. *Opty: A Library for Using Direct Collocation in the Optimization and Identification of Dynamic Systems*. Cleveland State University. <https://github.com/csu-hmc/opty>. May 2014.
- [5] Jason K. Moore et al. *GaitAnalysisToolKit: A Python Library for Gait Analysis*. <https://github.com/csu-hmc/GaitAnalysisToolKit>. Cleveland State University, Dec. 2013.
- [6] Jason K. Moore et al. *PyDy: A Multi-Body Dynamics Analysis Package Written in Python*. PyDy. <http://pydy.org>. Oct. 2011.
- [7] Jason K. Moore, Chris Dembia, and Oliver Lee. *DynamicistToolKit: A Python Library for Dynamics and Controls*. <https://github.com/moorepants/DynamicistToolKit>. June 2011.
- [8] Christopher Dembia et al. *Yeadon: A Python Library For Human Inertia Estimation*. <https://github.com/chrisdembia/yeadon>. June 2011.
- [9] Jason K. Moore. *HumanControl: Human Control of a Bicycle*. University of California, Davis. <https://github.com/moorepants/HumanControl>. May 2011.
- [10] Jason K. Moore, Chris Dembia, and Oliver Lee. *BicycleParameters: A Python Library for Bicycle Parameter Estimation and Analysis*. <https://github.com/moorepants/BicycleParameters>. Apr. 2011.
- [11] Jason K. Moore, P. D. L. de Lange, and Stefen Yin. *BicycleDataProcessor: Data Storage and Processing Library for an Instrumented Bicycle*. University of California, Davis. <https://github.com/moorepants/BicycleDataProcessor>. Feb. 2011.
- [12] Jason K. Moore, P. D. L. de Lange, and Yumiko Henneberry. *BicycleDAQ: Data Aquisition Application for an Instrumented Bicycle*. University of California, Davis. <http://github.com/moorepants/BicycleDAQ>. Oct. 2010.
- [13] SymPy Development Team. *SymPy: Python Library for Symbolic Mathematics*. <http://www.sympy.org>. 2006.

ACADEMIC
SERVICE

- Board Member of the Engrxiv: Preprint Server (April 2019-present)
- Co-Editor of the Journal of Open Source Education
- Co-Editor of the Journal of Open Engineering
- UCD MAE Undergraduate Committee (January 2017-Present)
- UCD MAE Website Committee (2017-2019)
- Lead organizer of the 6th Annual International Cycling Safety Conference in Davis, CA, USA, September 20-23, 2017. (January 2016-September 2017)
- Served on the organizing committees, publishing chair, for the 2016 Bicycle and Motorcycle Dynamics Conference in Milwaukee, Wisconsin.
- Served on the scientific committee for the 2013, 2016, and 2019 Bicycle and Motorcycle Dynamics Conferences.
- Volunteer instructor for Software Carpentry.
- Co-organizer of Cleveland's "North Coast Biomechanics and Brew" group (2014).
- Organized and mentored for Google Summer of Code under the Python Software Foundation, SymPy, and PyDy (2009-2018)
- Organized and co-chaired both an invited and special session on single track vehicle dynamics at the 2012 ASME DSCC conference.

ARTICLE AND
ABSTRACT
REVIEWS

- Reviewed "A Double Gyroscope Concept Approach for A 2-Wheel Vehicle" for Vehicle System Dynamics, 2020-09.
- Reviewed "gym-electric-motor (GEM): A Python toolbox for the simulation of electric drive systems" for the Journal of Open Source Software, 2020-08, <https://github.com/openjournals/joss-reviews/issues/2498>.
- Reviewed 54 abstracts for the 2019 Bicycle and Motorcycle Dynamics Conference.
- Reviewed SciPy 2018 tutorial proposals.
- Reviewed 10 SciPy 2017 tutorial proposals.
- Reviewed "A data set with kinematic and ground reaction forces of human balance" for PeerJ, 2017, <https://peerj.com/articles/3626/>.
- Reviewed "Motion analysis of a device including a disk and two slender bars with a design change for full disk revolution" for The Journal of Open Engineering, 2017, <https://doi.org/10.21428/572e5da9>.
- Reviewed "Optlang: A Python interface to common mathematical optimization solvers" for the Journal of Open Source Software, 2016-12. <http://dx.doi.org/10.21105/joss.00139>
- Reviewed "The Loop Closure Equation for the Pitch Angle in Bicycle Kinematics" for Vehicle System Dynamics, 2015-06.
- Reviewed "The effect of tyre and rider properties on the stability of a bicycle" by Bulsink, Vera, et. al, for Advances in Mechanical Engineering, 2015, <https://doi.org/10.1177/1687814015622596>.
- Reviewed "Changing the bicycle seat height: Effects on rider control." for the European Journal of Sports Sciences, 2015.
- Reviewed "Gyro device for bicycle handling assessment: A reliability study" by Fonda, Borut, et. al for the Journal of Applied Biomechanics, 2015.
- Reviewed "Self-driving Lego Mindstorms Robot" for SciPy 2014 Proceedings, 2014, https://github.com/scipy-conference/scipy_proceedings_2012/issues/12.
- Reviewed "On the influence of tyre and rider properties on the stability of a bicycle." by Vera Bulsink, et. al, for Vehicle System Dynamics, 2014.
- Reviewed "Are subject-specific musculoskeletal models robust to the uncertainties in parameter identification?" by Giordano Valente, et. al for PLoS One, 2014.
- Reviewed four papers for the Bicycle and Motorcycle Dynamics Conference 2013 proceedings, July 2013.
- Reviewed "Experimental and Numerical Analysis of Rider Motion in Weave Conditions" Doria, Alberto, et. al for Vehicle System Dynamics, 2011, <https://doi.org/10.1080/00423114.2011.621542>.

INVITED TALKS

University of Wisconsin-Stout, Menomonie, WI, USA

Estimating Rowing Kinematic Metrics: An Undergraduate Sports Biomechanics Research Project **April 12, 2019**

JupyterCon, New York, NY

The Future of Jupyter in Education Panel **August 23, 2018**

Meijo University, Nagoya, Japan

The Trail Towards An Optimally Handling Bicycle **June 21, 2018**

UC Davis Education Graduate Group, Davis, CA

Computational Thinking in the Engineering Curriculum: A Case Study in Mechanical Vibrations **March 11, 2018**

TU Delft, Delft, Netherlands

Identification of human control during walking **June 6, 2014**

U.S. Bicycling Hall of Fame, Davis, CA

How We Ride Bikes with Luke Peterson, Mont Hubbard, and Ron Hess **October 19, 2011**

UCD Tahoe Environmental Research Center, Lake Tahoe, NV

How We Ride Bikes with Luke Peterson and Mont Hubbard **May 12, 2011**

Fulbright FAST Conference, San Francisco, CA

Bicycling in the Netherlands and Europe, policies and practices: What can America learn from them. **March 12, 2010**

UC Davis D-Lab, Davis, CA

Use of Human Power in the Developing World **January 31, 2013, January 31, 2012, January 25, 2011, January 26, 2010**

TU Delft Mechanics Colloquium, Delft, Netherlands

A First Look at Rider Biomechanics while Controlling a Bicycle **June 4, 2009**

TUTORIALS AND WORKSHOPS

KEEN National Conference 2019, Dallas, TX, USA

Eight Ways to Use Computation to Teach Everything Else (with Allen Downey) **January 5, 2019**

COSMOS 2018, Davis, CA, USA

Squiggly Bicycle Routes: Physics Based Design Evaluation **July 10, 2017**

UCD CEE and DSI, Davis, CA, USA

Computational Thinking in the Engineering Curriculum (123 views) **January 10, 2017**

SCIPY 2017, Austin, Texas, USA

Automatic Code Generation With SymPy (7,500 views) **July 10, 2017**

Delta Stewardship Council Sacramento, California, USA
Software Carpentry Workshop **May 18–19, 2017**

UCD Center for Education Excellence Davis, California, USA
Software Carpentry Workshop **August 25, 2016**

iHub Nairobi, Kenya
Software Carpentry Workshop **June 17–18, 2016**

UCI Data Science Initiative Irvine, California, USA
Software Carpentry Workshop **February 21–22, 2015**

SCIPY 2016, Austin, Texas, USA
Simulating Robot, Vehicle, Spacecraft, and Animal Motion (9,051 views) **July 14, 2016**

SCIPY 2015, Austin, Texas, USA
Multibody Dynamics and Control with Python (6,902 views) **July 18, 2015**

SCIPY 2014, Austin, Texas, USA
Multibody Dynamics and Control with Python (4,809 views) **July 6, 2014**

PYCON 2014, Montreal, Quebec, Canada
Dynamics and Control with Python (2,918 views) **April 9, 2014**

MASB 2014, Akron, Ohio, USA
Simulation and Control of Biomechanical Systems with Python **March 9, 2014**

TALKS

SacPy, Sacramento, California, USA
What to do when chicks go bad in your flock: JupyterHub on Bare Metal with Kubernetes **November 14, 2019**

First Year Bicycle Engineering Seminar Guest Lecture, Davis, California, USA
What the Bicycle Can Tell Us About Human Control **2018**

UCD CoE Decision Day, Davis, California, USA
Introduction to UCD Mechanical and Aerospace Engineering **2018,2019**

SCIPY 2018, Austin, Texas, USA
Resonance: Learning Mechanical Vibrations Through Computational Thinking
 Prepared by me, presented by Kenneth Lyons (414 views) **July 10, 2017**

EME 1 Guest Lecture, Davis, California, USA
What the Bicycle Can Tell Us About Human Control **2018**

SacPy, Sacramento, California, USA
Resonance: An Interactive Textbook and Software Library for Learning About Mechanical Vibrations **November 9, 2017**

- EME 1 Guest Lecture**, Davis, California, USA
What the Bicycle Can Tell Us About Human Control **November 28, 2016**
- BMD 2016**, Milwaukee, Wisconsin, USA
An Optimal Handling Bicycle **September 21, 2016**
- SciPy 2015**, Austin, Texas, USA
Optimal Control and Parameter Identification of Dynamical Systems with Direct Collocation using SymPy (1,279 views) **July 8, 2015**
- Cleveland State University Human Motion and Control Seminar**, Cleveland, Ohio, USA
Reproducible Scientific Computing with Open Software and Open Data **September 17, 2014**
- 2014 NCSSR Visiting Scholar Kickoff**, Stanford, California, USA
Indirect identification of human control during walking **July 15, 2014**
- Dynamic Walking 2014**, Zurich, Switzerland
Identification of human control during walking **June 10, 2014**
- MASB 2014**, Akron, Ohio, USA
Identification of human control during walking **November 13, 2013**
- BMD 2013**, Narashino, Chiba, Japan
Methods for Elimination of Crosstalk and Inertial Effects in Bicycle and Motorcycle Steer Torque Estimation **November 13, 2013**
- BMD 2013**, Narashino, Chiba, Japan
Identification of Open Loop Dynamics of a Manually Controlled Bicycle-Rider System **November 11, 2013**
- SciPy 2013**, Austin, Texas, USA
Estimating and Visualizing the Inertia of the Human Body with Python (2,438 views) **June 27, 2013**
- SciPy 2013**, Austin, Texas, USA
Dynamics with SymPy Mechanics **June 27, 2013**
- ASME DSCC 2012**, Fort Lauderdale, Florida, USA
The Future of Bicycle and Motorcycle Dynamics **October 18, 2012**
- Velo-city Global 2012**, Vancouver, British Columbia, Canada
Time and Energy Penalties of Squiggly Bike Routes with Ted Buehler **June 28, 2012**
- MAE Exit Seminar**, Davis, CA, USA
Human Control of a Bicycle **May 15, 2012**

UCD ITS Seminar, Davis, CA

Bicycling in the Netherlands and Europe, policies and practices: What can America learn from them. with Eva Heinen **October 23, 2009**

UCD MAE Seminar, Davis, CA

A First Look at Rider Biomechanics while Controlling a Bicycle **October 29, 2009**

UCD MAE Qualifying Exam, Davis, CA

Human Control of a Bicycle **October 9, 2009**

ASME IDETC/CIE 2009, San Diego, CA

A Method for Estimating the Physical Properties of a Combined Bicycle and Rider **August 31, 2009**

Multibody Dynamics 2009, Warsaw, Poland

Rider Motion Identification During Normal Bicycling By Means of Principal Component Analysis **July 1, 2009**

Fulbright Mid Year Presentation, Amsterdam, Netherlands

Jason Moore, In The Netherlands... **February 5, 2009**

ISEA 2008, Biarritz, France

Parametric Study of Bicycle Stability **June 6, 2008**

PROFESSIONAL
EXPERIENCE

UC Davis, Davis, CA, USA USA

Consultant **June-August 2015**

- Co-developed a R Shiny web application for Agricultural Field Trial Statistics (Agroft). github.com/ucd-ipo/agroft

Plotly, Montreal, Quebec, Canada USA

Consultant **July 2015**

- Developed a Jupyter notebook demonstrating the use of Plotly tools in control engineering.

Old Dominion University, Norfolk, Virginia USA

Langley Full Scale Tunnel Design Engineer **June 2004 to August 2005**

- Extensive design, modeling and drafting with Autodesk Inventor.
- Designed a portable floor system for a car balance.
- Designed a six degree of freedom full scale car balance.
- Wrote stress analysis reports for NASA specifications.
- Test-model design, fabrication and repair.
- Support in daily activities (test preparation, taking data, etc.).

Maglev Tram Design Engineer **May 2004 to January 2005**

- Created a reference CAD model of a full-scale magnetic levitation train car using AutoCAD Mechanical Desktop.

ODU HPV Team Project Lead **September 2003 to January 2005**

- Lead and managed a mechanical engineering senior design project.
- Designed and constructed a human powered land vehicle.

- Focused on bicycle frame, controls, stability, and drive train design
- Received 6th place out of 20 as a rookie team at the ASME Human Powered Vehicle Challenge.
- Website designer and maintainer.

ODU SAE Formula Team Design Engineer **2001 to 2002**

- Helped design and fabricate a scaled formula race car.
- Extensive design, modeling and drafting with AutoCAD Mechanical Desktop.
- Designed and fabricated the drive train and composite body.
- Website designer.

Bauer Compressors, Norfolk, Virginia USA

Mechanical Design Engineer Intern **June 2003 to December 2003**

- Extensive 3D modeling with Autodesk Inventor: modeled complex air compressor systems.
- Sheet metal design and fabrication.
- V-belt drive designs.
- Oil filtration system design.
- Designed parts and prepared drawings for fabrication.

Area Access, Norfolk, Virginia USA

Elevator Mechanic Assistant **May 2002 to August 2002**

- Installed and repaired elevators and various accessibility machines.
- Exposed to various electrical and mechanical systems.
- Forced to listen to Rush Limbaugh every morning during the truck ride.

Danville Community College, Danville, Virginia USA

CNC Mill Operator **June 2001 to August 2001**

- Learned G-code/Manual Programming.
- Learned FeatureCam 3D CAD/CAM software.
- Programmed and operated a HAAS 3-axis mill.

Mark D. Moore Construction Company, Danville, Virginia USA

Carpenter **1995 to 2001**

- Residential house construction and remodeling
- Framing, finishing, painting, drywall, hardwood floors, masonry

VOLUNTEER
SERVICE

Across the Causeway Transit Collective, Davis & Sacramento, CA, USA

Member, Organizer, and Facilitator **July 2019 to June 2020**

- Transit advocacy for a better city-to-city commuter route.

Davis Bike Collective, Davis, CA USA

Bicycle Mechanic, Teacher and Organizer **September 2005 to June 2013**

- Volunteered bi-weekly as a teaching mechanic.
- Co-founded a consensus based non-profit.
- Co-wrote bylaws and setup the legal non-profit.
- Raised thousands of dollars in donations and grants.
- Organized conferences, parties, fundraisers, bike rides, work parties, outreach events.
- Organized two 1500+ attendee beer tasting and movie events with New Belgium Brewery.
- Web site maintenance, shift scheduling, handled distributor orders, managed email listservs.
- Lead the workshop series "Open Bike Night" for one year.

Davis Bicycles!, Davis, CA USA

Volunteer

September 2009 to June 2013

- Administer the organization's websites [1] and [2].
- Lobby city council for bicycle amenities.
- Worked directly with city staff on various projects.

Maya Pedal, San Andres Itzapa, Guatemala

Volunteer Engineer

Summer 2007

- Constructed pedal powered machines (i.e. blender, corn dekerneler/grinder, etc).
- Design work on a macadamia nut sheller.
- Repaired bicycles.
- Shop organization: tool boards, bike graveyard.

Whirlwind Wheelchair International, Lusaka, Zambia

Volunteer Engineer

Summer 2006

- Worked at the Disacare Wheelchair Center.
- Worked on the design and fabrication team for a bicycle ambulance trailer.
- Fixture design and training.

Virginia Beach Public Schools, Virginia Beach, VA

Volunteer Mentor

2004

- Assisted high schools students with an engineering design competition.

UC Davis Institute for Transportation Engineers, Davis, CA

Tour Leader

December 2006

- Organized a group bicycle ride and museum tour.

ODU College of Engineering, Norfolk, VA

Tour Guide

February 2004

- Led open house tours for middle school children.

Davis Bicycle Commission, Davis, CA

Bicycle Counter

- Participated in bicycle usage data collection.

**FABRICATION
SKILLS**

Extensive machining and fabrication experience: milling, turning, welding (MIG, TIG, ARC, Torch, Brazing), wood working, sheet metal work

**SOFTWARE
PROFICIENCIES**

Extensive drafting, solid modeling, CAD, CAM, and FEA experience. Proficient in: CADKEY, AutoCAD, AutoCAD Mechanical Desktop, Autodesk Inventor, FeatureCAM 3D, IntelliCAD, PATRAN/NASTRAN, PRO-Engineer/PRO-Mechanica, GMAX, CNC/G-code, OnShape

Programming Languages (in approximate order of proficiency): Python, MATLAB, R, BASH, C, Javascript, C++, Lua

Web development: HTML, CSS, Javascript, Pelican, Hyde, Sphinx, Flask, Amazon Web Services, Ubuntu Server, Apache, NGinx, Plone, Wordpress, Joomla, Homesite, Microsoft Front Page, Macromedia Dreamweaver

Websites that I currently administer: moorepants.info [Hyde], Sports Biomechanics Lab [Plone 3], moorepants [HTML]. 2017 ICSC [Wordpress], PyDy [Sphinx]

Websites that I developed but no longer administer: hmc.csuohio.edu [Plone 4], N Street Cohousing [Plone 4], Davis Bike Collective [Joomla & Wordpress], Bike-Davis.info [Wordpress], smartdrive.ucdavis.edu, drive5.us [Flask], clevelandwiki.org [Django], ODU HPV [HTML],

Dynamics and Simulation: SymPy Mechanics, SciPy, MATLAB/Simulink, Working Model, Autolev, Ax1/CampG, Opensim, Simbody

Computational: SciPy, NumPy, Uncertainties, Pandas, Cython, IPOPT, CMA-ES, SymPy, MATLAB, MathCAD

Instrumentation: National Instruments products including LabVIEW, MatLab DAQ Toolbox, Serial Protocols

Data: HDF5, PyTables, MySQL, MariaDB, SQLite, MongoDB

Graphics: Matplotlib, R, MATLAB, GIMP, Inkscape, Paint Shop Pro, Macromedia Fireworks, Blender, GMAX

Operating Systems: Linux (Ubuntu 8.04-17.10 and other distros), Microsoft Windows (3.1-7), DOS

Utilities: FTP, Version Control (Git/Mercurial/Subversion), SSH, BASH

Reference management: BIBTEX, JabRef, Zotero, Mendeley, Endnote

Word processing: Vim, L^AT_EX, Google Docs, LibreOffice Writer, TeXnic Center, Microsoft Word

REFERENCES

Academic Research

- Dr. Mont Hubbard, *MSc and PhD advisor*, Professor, University of California, Davis, Mechanical and Aerospace Engineering Department, One Shields Avenue, Davis, CA 95616, +01-530-752-6450, mhubbard@ucdavis.edu
- Dr. Arend Schwab, *Fulbright and PhD advisor*, Professor, Delft University of Technology, Mekelweg 2, NL 2628 CD Delft, The Netherlands, +31 15 27 82701, a.l.schwab@tudelft.nl
- Dr. Antonie J. van den Bogert *Post Doctoral Supervisor* Professor, Cleveland State University, Mechanical Engineering Department, 1960 E. 24th St., SH 232 Cleveland, Ohio 44115, +01-216-687-5329, a.vandenbogert@csuohio.edu
- Dr. Ronald Hess, *PhD advisor*, Professor, University of California, Davis, Mechanical and Aerospace Engineering Department, One Shields Avenue, Davis, CA 95616, +01-530-752-1513, rahess@ucdavis.edu
- Dr. Xinfan Lin, *Research Collaborator*, Assistant Professor, University of California, Davis, Mechanical and Aerospace Engineering Department, One Shields Avenue, Davis, CA 95616, lxflin@ucdavis.edu
- Dr. R. Paul Crawford, *Research Collaborator*, CEO, Hegemony Technologies, Davis, CA, paul.crawford@hegemonytechnologies.com
- Dr. Luke Peterson, *Collaborator at UCD*, dlpeterson@ucdavis.edu
- Dr. Jodi Kooijman, *Collaborator at TU Delft*, jodikooijman@gmail.com

Teaching and Education

- Dr. Petros Abraha *Educational Collaborator*, Professor, Meijo University, Department of Mechanical Engineering, 1-501 Shiogamaguchi Tenpaku-ku Nagoya 468-8502 Japan, petros@meijo-u.ac.jp

- Dr. Allen Downey *Educational Collaborator*, Professor, Olin College, Needham, MA, USA, Allen.Downey@olin.edu
- Dr. Steven Velinsky *Capstone Design Co-Instructor*, Distinguished Professor, University of California, Davis, Mechanical and Aerospace Engineering Department, One Shields Avenue, Davis, CA 95616,
- Dr. Susan Handy, *COSMOS Lead Instructor*, Professor, University of California, Davis, Davis, CA, slhandy@ucdavis.edu
- Dr. Jim Schaaf, *TA and Lecturer supervisor*, Continuing Lecturer, University of California, Davis, Mechanical and Aerospace Engineering Department, One Shields Avenue, Davis, CA 95616, +01-530-752-5548, jas@ucdavis.edu
- Dr. Rida Farouki, *TA supervisor*, Professor, University of California, Davis, Mechanical and Aerospace Engineering Department, One Shields Avenue, Davis, CA 95616, +01-530-752-1779, farouki@ucdavis.edu

Engineering

- Dr. Tai Stillwater, *SmartDrive and Pedal Desk*, Postdoctoral Researcher, Institute of Transportation Studies, University of California, Davis, 2028 Academic Surge, One Shields Avenue, Davis, CA, 95616, tstillwater@ucdavis.edu
- Matthew Seitzler, P.E. *Colleague*, Professional Engineer, at Davis Energy Group, Davis, CA, matt@sre-engineering.com
- Dr. Drew Landman, *LFST supervisor and undergraduate mentor*, Professor, Old Dominion University, Mechanical and Aerospace Engineering, 1311 Engr and Comp Sci Bldg, Norfolk, VA 23529, +01-757-683-6008, dlandman@odu.edu
- Dr. Anthony Passerini, *Cell shearing project supervisor*, Assistant Professor, University of California, Davis, Biomedical Engineering Department, One Shields Avenue, Davis, CA 95616, +01-530-754-6715, agpasserini@ucdavis.edu
- John Dwyer, *Bauer Compressors supervisor*, Engineer Department Manager, john.dwyer@bauercomp.com

Academic and Community Service

- Dr. Debbie Niemeier, *ICSC 2017 Co-Organizer*, Professor, University of California, Davis, National Academy of Engineering, Davis, CA, dniemeier@ucdavis.edu
- Dr. Robb Davis, *Past Mayor of Davis, CA*, Davis, CA, rdavis@cityofdavis.org
- Dr. Sarah McCullough, *Colleague at the Davis Bike Collective*, UC San Diego, smcc@ucdavis.edu
- Dr. Susan Handy, *ICSC 2017 Co-Organizer*, Professor, University of California, Davis, Davis, CA, slhandy@ucdavis.edu