

Erin Sánchez

Curriculum Vitae

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Biocore, LLC
1627 Quail Run
Charlottesville, VA 22911

EDUCATION

Master of Science in Mechanical Engineering December 2017

Department of Mechanical and Aerospace Engineering
University of Virginia, Charlottesville, Virginia
Thesis Title – *Evaluation of the efficacy of head and brain injury risk functions*
Advisor: Jeff R. Crandall, Ph.D.

Bachelor of Science in Mechanical Engineering (with highest distinction) May 2015

Double Major: Spanish
Department of Mechanical Engineering
University of Virginia, Charlottesville, Virginia
Thesis – *Computational methodology to predict injury severity in side impact motor vehicle crashes*
Study abroad in Valencia, Spain, Summer 2013

PROFESSIONAL EXPERIENCE

Senior Mechanical Engineer 2017-present
Biocore, LLC
Charlottesville, Virginia

Graduate Research Assistant 2015-2017
University of Virginia, Center for Applied Biomechanics
Charlottesville, Virginia

- Duties included test matrix design, instrumentation of ATDs, data acquisition, data analysis, and publication
- Assessed the predictive efficacy of brain injury risk functions at sub-injurious and concussive impact severities
- Evaluated impact response in motorcycle helmets from various countries of countries of different socioeconomic status
- Analyzed the protective capabilities of football helmets under multiple impact conditions

Undergraduate Research Assistant 2014-2015
University of Virginia, Center for Applied Biomechanics

- Supervisors: Jeff Crandall, Ph.D., Gerald Poplin, Ph.D.
- Studied advanced automatic crash notification systems in vehicles and their use in emergency dispatch and response during

Capstone Research Project 2014-2015
University of Virginia, Department of Mechanical and Aerospace Engineering

- Supervisors: Gavin Garner, Ph.D., Roger Fittro, Ph.D.
- Designed and prototyped a quadcopter using Solidworks and a 3D printer

- Developed the control algorithm for quadcopter stabilization during flight

Undergraduate Teaching Assistant

University of Virginia, Department of Mechanical and Aerospace Engineering

2015

- Supervisor: Gavin Garner, Ph.D.
- Assisted undergraduate students with weekly assignments in the mechatronics laboratory

HONORS AND AWARDS

- Louis T. Rader Outstanding Undergraduate Student May 2015
- Pi Tau Sigma Mechanical Engineering Outstanding Student May 2015
- Capital One Scholarship Program Winner Dec 2012
- Undergraduate Dean's List 2011-2015

RESEARCH INTERESTS

- Injury biomechanics
- Injury mitigation
- Sports performance analytics
- Head injury and concussion
- Lower extremity soft tissue injury
- Injury criterion development and risk assessment

PROFESSIONAL MEMBERSHIPS

- Society of Women Engineers (SWE)
- Pi Tau Sigma Mechanical Engineering Honor Society

RELATED SKILLS

- Data analysis: MATLAB, Python
- Statistics: R, Minitab
- Laboratory testing: data acquisition, instrumentation, high speed camera
- Motion capture: VICON
- Design of fixtures: Solidworks (Certified Associate), Autodesk Inventor, Autodesk Fusion
- Technical communication

PUBLICATIONS

A. Refereed Journal Publications

- A1. Bailey AM, Sanchez EJ, Park G, Gabler LF, Funk JR, Crandall JR, Wonnacott M, Withnall C, Myers BS, Arbogast KB (2020). Development and Evaluation of a Test Method for Assessing the Performance of American Football Helmets. *Annals of Biomedical Engineering*. DOI: 10.1007/s10439-020-02626-6
- A2. Reynier KA, Alshareef AA, Sanchez EJ, Shedd DF, Walton SR, Erdman NK, Newman BT, Giudice JS, Higgins MJ, Funk JR, Broshek DK, Druzgal TJ, Resch JE, Panzer MB (2020). The Effect of Muscle Activation on Head Kinematics during Non-injurious Head Impacts in Human Subjects. *Annals of Biomedical Engineering*. DOI: 10.1007/s10439-202-02609-7

- A3. Sanchez EJ, Gabler LF, Good AB, Funk JR, Crandall JR, Panzer MB (2018). A Reanalysis of Football Impact Reconstructions for Head Kinematics and Finite Element. *Clinical Biomechanics*. DOI: 10.1016/j.clinbiomech.2018.02.019
- A4. Sanchez EJ, Gabler LF, McGhee JS, Olszko AV, Chancey VC, Crandall JR, Panzer MB (2017). Evaluation of Head and Brain Injury Risk Functions Using Sub-Injurious Human Volunteer Data. *Journal of Neurotrauma*. DOI:10.1089/neu.2016.4681.

B. Refereed Conference Publications

- B1. Reynier K, Alshareef A, Shedd DF, Sanchez EJ, Funk JR, Panzer MB. (2019) Comparison of the Hybrid III and Human Volunteer in Low-Severity Lateral Head Impacts. *Proceedings of the International Research Council on the Biomechanics of Impact (IRCOBI)*, Florence, Italy. (short comm.)

C. Other Publications

- C1. Sanchez E, Gabler L, Rowson B, Rowson S, Duma S, Panzer M (2017). Brain Strain Patterns Associated with Football Impact Reconstructions. *National Neurotrauma Symposium*, Snowbird, UT. (poster)
- C2. Price CW, Alshareef AA, Sanchez EJ, Reynier KA, Funk JR, Panzer MB (2017). Evaluation of Head Impact Methodology for Determination of Anthropomorphic Testing Device (ATD) Response via Hybrid III ATD Characterization. *BMES Annual Meeting*, Phoenix, AZ. (poster)
- C3. Gabler LF, Rodenberger EJ, Crandall JR, Panzer MB (2016). Predicting Brain Injury Using Head Kinematics. *National Neurotrauma Symposium*, Lexington, KY. (poster)
- C4. Panzer MB, Gabler LF, Rodenberger EJ, Joodaki H, and Crandall JR (2016). Assessment of Brain Injury Criterion (BrIC). *In response to the National Highway Traffic Safety Administration's Request for public comment on the New Car Assessment Program* [Docket No. NHTSA-2015-0119] at: www.regulations.gov. (public comment)
- C5. Rodenberger E, Shaia B, Crandall J, Bhalla K (2016). Impact response of motorcycle helmets in low-, mid-, and high-income countries. *12th Annual Ohio State Injury Biomechanics Symposium*. Columbus, Ohio. (poster)