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## EDUCATION

- Master of Science, Mechanical Engineering, Graduated 2014 *Cumulative GPA: 4.0*  
University of Colorado Denver
- Bachelor of Science, Mechanical Engineering, Graduated 2012 *Cumulative GPA: 3.5*  
University of Colorado Denver

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## PROFESSIONAL EXPERIENCE

- Principal Biomechanical Engineer** 03/2018-present  
Impressio Denver, CO
- Lead and implement impact testing efforts and helmet design projects
  - Evaluate and analyze head injury criteria for research and development
  - Establish role between material, structure, and impact performance
- Biomechanics / Forensic Consultant** 04/2017-present  
Ponderosa Associates Westminster, CO
- Evaluation of injuries to determine causation
  - Perform analyses of biomechanics in automobile collisions, sports activities, and personal injury incidences
  - Create anatomical 3D models from medical images for comparison analyses or visual reference
- Operations Engineer** 01/2016-01/2018  
Mighty Oak Medical Englewood, CO
- Provided pre-surgical planning for pedicle screw placement in spine surgery
  - Designed patient-specific guides to mechanically constrain surgeon to follow predetermined trajectories
  - Interacted with surgeons to provide the best surgical outcome for their patient

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## PUBLICATIONS AND CONFERENCE PRESENTATIONS

### PAPERS

- Mills ST, Young, TS, **Chatham LS**, Poddar S, Carpenter RD, Yakacki C “Effect of foam densification and impact velocity on the performance of a football helmet using computational modeling.” *Computer Methods in Biomechanics and Biomedical Engineering* (2020).
- Chatham L**, Patel V, Yakacki C, Carpenter RD “Interbody Spacer Material Properties and Design Conformity for Reducing Subsidence During Lumbar Interbody Fusion.” *Journal of Biomechanical Engineering* (2017) 139(5): 051005-1-8.
- Pate K, Sherk V, Carpenter RD, Gally F, Weaver M, **Chatham L**, Goldstrohm D, Crapo J, Kohrt W, Bowler R, Oberley-Deegan R, Regan E, “The beneficial effects of exercise on cartilage are lost in mice with reduced levels of ECSOD in tissues.” *Journal of Applied Physiology* (2015) 118(6): 760-7.

## ABSTRACTS AND POSTER PRESENTATIONS

**Chatham L.**, Sherk V., Carpenter R.D., “Evaluating the Precision of Compressive Failure Tests of the Murine Tibia Using 3D Printing” *American Society for Bone and Mineral Research 34<sup>th</sup> Annual Meeting*. 2013. Baltimore, MD.

Sherk V., **Chatham L.**, Pate K., Regan E., Kohrt W., Carpenter R.D. “Bone Quality Adaptations to Running in a Murine Model of Impaired Reactive Oxygen Species (ROS) Scavenging” *American Society for Bone and Mineral Research 34<sup>th</sup> Annual Meeting*. 2013. Baltimore, MD.

**Chatham L.**, Patel V.V., Carpenter R.D., “Subject-Specific Differences in Strain Levels in the Lumbar Spine Following Interbody Fusion” *Orthopaedic Research Society Annual Meeting*. 2013. San Antonio, TX.

**Chatham L.**, Patel V.V., Carpenter R.D., “Effects of age-related cortical thinning and trabecular bone loss on the strain distribution in the lumbar spine following interbody fusion” *American Society for Bone and Mineral Research 33<sup>rd</sup> Annual Meeting*. 2012. Minneapolis, MN.

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## PROFESSIONAL DEVELOPMENT AND ACTIVITIES

2020 **University of Colorado Denver Advanced Biomechanics Graduate Course Presentation**, “Injury Biomechanics”

**Colorado Defense Lawyers Association**, Trial Academy

2019 **Women’s Trial Lawyer Network Continuing Legal Education (CLE) Presentation**, “Injury Biomechanics – Head and Helmet Impacts”

**Side Impact Occupant Safety and CAE**, SAE Course, Troy, MI

**ASTM International Technical Committee Meeting**, F08 on Sports Equipment, Playing Surfaces and Facilities, Denver, CO

**6<sup>th</sup> International Symposium on Safety in Ice Hockey**, Denver, CO

**University of Colorado Denver English Composition for Engineers Presentation**

2018 **62<sup>nd</sup> Stapp Car Crash Conference**, San Diego, CA

**46<sup>th</sup> International Workshop in Human Subjects for Biomechanical Research**, San Diego, CA

2017 **Injuries, Anatomy, Biomechanics & Federal Regulation**, Society of Automotive Engineers (SAE) Seminar, Tyson, VA

2011 **Fundamentals of Engineering (FE/EIT) License**, Denver, CO October 2011

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## PROFESSIONAL AFFILIATIONS AND HONORS

- American Society for Testing and Materials (ASTM)
  - F08 Sports Equipment, Playing Surfaces and Facilities
- Society of Automotive Engineers (SAE)

- Tau Beta Pi (TBP) Engineering Honor Society, TBP Impact Award
- University of Colorado, Outstanding Mechanical Engineering Graduate Student Award
- University of Colorado, Outstanding Mechanical Engineering Senior Award

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## TEACHING AND RESEARCH EXPERIENCE

### Director and Teaching Instructor

06/2014-06/2015

BlueStamp Engineering

Denver, CO

- Guided students in creating their projects and encouraged them to stay motivated
- Monitored build of student websites and dealt with all technical responsibilities

### Biomechanical Researcher

11/2011-05/2014

University of Colorado Denver

Denver, CO

- Optimized lumbar spine fusion instrumentation using image-based FE models
- Utilized Simpleware to create models and in Abaqus to run FE analyses
- Utilized SolidWorks for implant and instrumentation design
- Conducted mechanical tests of lumbar spines and murine tibias
- Evaluated strain and stress variations in the spine due to age-related effects
- Analyzed results to aid patient-specific selection of implant materials

### NSF Engineering Outreach Graduate Fellowship

07/2013-07/2014

University of Colorado Denver

Denver, CO

- Designed and implemented research and interdisciplinary (math and science) lessons
- Enhanced science curriculum and pedagogy

### Materials Laboratory Instructor

08/2012-05/2013

University of Colorado Denver

Denver, CO

- Taught the Properties of Engineering Materials Laboratory
- Demonstrated safe use of testing equipment and instructed on writing well formulated technical reports