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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

**Impact Testing Engineer** 03/2018-present  
Impressio Denver, CO

- Lead and implement helmet impact testing
- Calculate and analyze the head accelerations experienced
- 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

**Chatham L.**, Patel V., Yakacki C., Carpenter R.D. “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 R.D., 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 33rd 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**

BlueStamp Engineering

06/2014-06/2015

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**

University of Colorado Denver

11/2011-05/2014

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**

University of Colorado Denver

07/2013-07/2014

Denver, CO

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

### **Materials Laboratory Instructor**

University of Colorado Denver

08/2012-05/2013

Denver, CO

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