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## EDUCATION

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

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

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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
- Establishing 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 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

ASTM International Technical Committee Meeting, F08 on Sports Equipment, Playing Surfaces and Facilities - Denver, CO May 2019

6<sup>th</sup> International Symposium on Safety in Ice Hockey – Denver, CO May 2019

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

46<sup>th</sup> International Workshop on Human Subjects for Biomechanical Research – San Diego, CA November 2018

Injuries, Anatomy, Biomechanics & Federal Regulation, SAE – Tysons, VA July 2017

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

**Research Assistant** 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

**GK-12 Outreach Science Fellow** in Middle Schools 07/2013-07/2014  
National Science Foundation Denver, CO

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

**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