Ravi Rasik Patel

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Education

2013	BS	Georgia Institute of Technology GPA: 3.35/4.00	Biomedical Engineering
2016	MS	University of Colorado-Denver	Mechanical Engineering
2018	PhD	University of Colorado-Denver	Engineering and Applied Sciences

Dissertation: *Development of a Patient Specific Porous Poly(para-Phenylene) Spinal Cage for Lumbar Interbody Fusion*

Committee: Christopher Yakacki, PhD; R. Dana Carpenter, PhD; Kai Yu, PhD; Carl P. Frick, PhD; Nick Willett, PhD

Software Skills

Finite element analysis using ABAQUS (5 years), image segmentation in ScanIP (5 years), 3D design in SolidWorks (8 years), scripting in MATLAB (9 years), data acquisition in LabVIEW (2 years)

Professional Experience

2018-Present ***Consulting Engineer,*** K1C, Denver, CO
- Developed finite element model for analysis of compression a nickel-titanium based intramedullary nail for ankle fusion

2017-Present ***NSF Intellectual Property Intern***, Furman IP Law, Boulder, CO
- Conducted prior art searches for attorney to determine product patentability
- Drafted invention disclosures and patent claims strategically to maximize client IP portfolio options and create the broadest coverage of existing patents

2014-Present ***Graduate Research Assistant***, University of Colorado Denver
- Developed Finite Element model for analysis of porous polymer spinal fusion cages using patient specific images and created a model for prediction of endplate properties from demographic and radiographic data
- Analyzed mechanical properties of lumbar vertebrae and spinal instrumentation using electromechanical testing systems with custom test fixtures (Instron, MTS, Bose) according to ASTM F2267

2013-2014 ***Research Scientist***, LumaMed, Inc., Norcross, GA
- Performed power throughput analysis of a novel optical microscope for detection of cancer tumor margins
- Developed LabVIEW program for image subtraction of cross polarized cameras

2010-2012 ***Research and Development Co-op***, Medshape, Inc. Atlanta, GA

- Developed and modeled various surgical implant and instrument designs for shoulder, foot/ankle, and knee orthopedic procedures within the quality system defined by ISO 13485.
- Evaluated mechanical strength and integrity of orthopedic implants using electromechanical material testing systems (Instron, MTS, TA) for validation testing according to ASTM and ISO standards for each respective device.

2009-2010 ***Research Assistant***, Georgia Institute of Technology, Atlanta, GA
Department of Biomedical Engineering

2007-2008 ***Research Assistant***, Georgia State University, Atlanta, GA

Awards/Honors

2017 NSF INTERN Fellowship Program awardee ($30,000)

2016 1st Place, Mechanical Engineering Spring Symposium
Given by University of Colorado Denver Mechanical Engineering Dept.

2015 3rd Place, Mechanical Engineering Spring Symposium
Given by University of Colorado Denver Mechanical Engineering Dept.

Publications

2018

3. **Patel, R. R.** ; Noshchenko, A; Carpetner, R. D.; Baldini, T. ; Frick, C. P.; Patel, V. V. ; Yakacki, C. M. (2018) Evaluation and Prediction of Human Lumbar Vertebra Endplate Mechanical Properties Using Indentation and Computed Tomography. (In Preparation)

2017

2. Ahn, H.*; **Patel, R.R.***; Hoyt, A.; Lin, A.; Trostrick, B.; Guldberg, R.; Frick, C.P.; Carpenter, R.D.; Yakacki, C.M. (2017) Load Sharing and Mechanical Strength of Bone Ingrowth in Porous Poly(para-phenylene) scaffolds. *Acta Biomaterialia* (Accepted for publication) (*indicates equal contribution)

2016

1. Collins, D. A., Yakacki, C. M., Lightbody, D., **Patel, R. R.**, & Frick, C. P. (2016). Shape-memory behavior of high-strength amorphous thermoplastic poly (para-phenylene). *Journal of Applied Polymer Science*, *133*(3)

Presentations/Conference Proceedings

2017

2. **Patel, R.R.**; Ahn, H.; Hoyt, A.; Lin, A.; Trostrick, B.; Guldberg, R.; Frick, C.P.;Carpenter, R.D.; Yakacki, C.M. (2017) Load Sharing and Mechanical Strength of Bone Ingrowth in Porous Poly(para-phenylene) scaffolds. IMRC
1. **Patel, R. R.** ; Noshchenko, A; Carpetner, R. D.; Baldini, T. ; Frick, C. P.; Patel, V. V. ; Yakacki, C. M. (2017) Evaluation and Prediction of Human Lumbar Vertebra Endplate Mechanical Properties Using Indentation and Computed Tomography. ORS

Additional Information

2017-Present Teaching Assistant/Lecturer, 3D design and 3D Printing Class, University of Colorado Denver

2017 *Attendee*, Practicing Law Institute Patent Bar Review, Atlanta, GA