

Michaela M. Rillings

Summary of Qualifications

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| <ul style="list-style-type: none"> ▪ Materials Fabrication Skills: Material syntheses including 3D printing, fabrication of composites, spin casting, metal nanostructuring. During FIRST robotics; metals fabrication including adhesive bonding, drilling, fastening, composite builds, lathing, rolling. ▪ Materials Characterization & Laboratory Skills: Laser optical profilometer, heat treatment, hardness testing, Transmission Electron Microscope sample prep, metallography (grinding, polishing, electropolishing, sectioning with MSX and slow speed saws), mechanical testing (tension, compression, and fatigue), Digital Image Correlation, XRD, ESEM, FESEM; certified in Hazardous Waste Removal. | <ul style="list-style-type: none"> ▪ Analysis: Geometric modeling, tolerancing. ▪ Critical Thinking: Using logic and reasoning to determine the strengths and weaknesses of potential solutions or approaches to problems. Member of several design teams for FIRST robotics for mechanisms, robot structure, and drive train. ▪ Problem Solving: Able to identify complex problems and find information to develop and evaluate options and implement solutions. ▪ Computer: Magics, InDesign, Dolphin, Freeform, Grapher, SolidWorks; Microsoft Excel, Word, PowerPoint; Asana Project Management; Mathematica. |
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Experience

Jan 2017 – Present	SAFE, Inc.	Monument, CO
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Junior Engineer

- Material characterization
- Mechanical testing
- Failure analysis

Oct 2016 – Dec 2016	3D Systems	Littleton, Co
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Biomedical Designer

- Design jaw splints that are then 3D printed as well as completing case reports using Magics, Dolphin, InDesign and Freeform programs.

May 2016 – Present	Colorado School of Mines	Golden, Co
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Materials and Metallurgical Engineering Research Faculty

- Member of the Nano-Structured Materials Research Team (NMRT): Project Lead on Insulin Pump Tubing: conducted tensile testing and Digital Imaging Correlation of polymer composite with a light curing adhesive. Assisted with nanostructuring and fatigue testing of Nano-Titanium Zirconia Alloys, and set the current world record for longest nanostructured Aluminum Alloy rod.

Jul 2013 – May 2016	Colorado School of Mines	Golden, Co
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Undergraduate Research Assistant

- Member of NMRT; Project Leader for Anti-Injury Activewear (AIA), assistant for Bioabsorbable Nano-Magnesium, Ultrafine Grain Stainless Steel, Nano-Aluminum conductors, Biological Properties of Nanostructured Titanium, Anodized Aluminum, and Insulin Pump Tubing.
- My work has mostly revolved around design and fabrication of metallic lattices for AIA. This has involved 3D printing, converting these prints into metal via spin casting, and compression and tensile tests on both 3D prints and spin casted metal designs. I have worked with an Equal-Channel Angular Pressing machine to create nanostructured metals. I have done heat and cryogenic treatment of steel, machining of numerous metals, and metallography.
- Prepared TEM samples for Advanced Steel Processing and Products Research Center, ASPPRC.

	Colorado School of Mines	Golden, Co
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Project Leader, Anti-Injury Activewear (AIA) Project within the Nanostructured Materials Research Team/Senior Design Project

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- Led project to develop and manufacture a hybrid material system to absorb impact. This system utilized 3D parts, which I printed and tested. I managed the core research team plus two Senior Engineering Design teams.

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Education		
May 2016	Colorado School of Mines	Golden, Co
Bachelor of Science – Materials and Metallurgical Engineering		
Activities/ Awards		
<p>Mines Mountain Biking Team: 4th Place at 2015 Collegiate National Mountain Bike Championship, RMCCC 2014 Conference Champion in collegiate Women's B Mountain Biking.</p> <p>Mines Women's Lacrosse Team: Member 2012-2016, 2015-2016 Captain, 2016 Regional Qualifier.</p> <p>Mines Big Mountain Ski Team: 12th Place Women U25 Grand Targhee Big Mountain Ski Competition 2016.</p> <p>Championship level Irish step dancer: Competed at the North American National and All Ireland Championships.</p> <p>Member of Colorado School of Mines Materials Advantage Chapter, CSMMAC</p> <p>Member of Society of Women Engineer</p> <p>Order of the Engineer</p>		