Benjamin Freeman

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Summary

* **Materials Engineer with experience in aerospace industry and research settings**
* **Experience with material properties, CAD, design, testing, prototyping, R&D, 3D printing and engineering fundamentals**

Experience

**University of Texas at Austin,** Austin, TX Aug 2015-Jan 2016

* Research Assistant for project studying Laser Ablation of Microparticle Aerosols
* Creation of SOP’s, equipment maintenance, operation of laser and other equipment

**Senior Capstone Design,** Rice University Aug 2014-May 2015

* Acted as team lead for project to fabricate a nanomechanical testing device for use in an SEM
* Created CAD models to be fabricated, assisted in machining, worked with user to test/modify design

**SpaceX,** Los Angeles, CA May 2014-Aug 2014

* Propulsion Intern – High Temperature Composite R&D for novel engine nozzle liners
* Performed CAD tooling design, 3D printing of tooling, reinforcement architecture design,

and materials testing for Ceramic Matrix Composites

* Developed a method and database to find carbon fiber with best mechanical properties for composites

**E. V. Barrera Group,** Rice University Dec 2012-Sep 2014

* Undergraduate Researcher
* Fabricated and analyzed composite materials composed primarily of carbon nanotubes,

nanocrystalline aluminum alloys, and polymeric materials

* Operated two-stage light gas gun to test hypervelocity impact response of composite

shielding materials for potential use in spacecraft

**Welcome Center,** Rice University Jan 2012-May 2013

* Gave tours to grade school groups, dignitaries, and alumni
* Presented on college planning to grade school groups

Education

**Rice University,** Houston, TX Aug 2011-May 2015

* B.S. in Materials Science and NanoEngineering – GPA: 3.65/4.00
* Relevant Coursework: Senior Capstone Design, Junior Design, Mechanical Properties of Materials,

CAD, Metallography and Phase Relations, Ceramics and Glasses, Crystallography and Diffraction,

Properties of Polymers, Nanoscience and Nanotechnology, Mechanics of Solids, Transport

Phenomena in Materials Science, Organic Chemistry

Technical Skills

**Software:** MATLAB, CAD: SolidWorks, Siemens NX, Autodesk Inventor, Python (beginner)

**Materials Testing and Characterization:** SEM, Hardness, 3-point bend, and Tensile/Compression testing

**Fabrication Skills:** 3D Printing (FDM), Lathe (beginner), Compression Molding, Laser Cutting, VARTM, Injection Molding

Awards

President’s Honor Roll Jul 2014

MSNE Service and Community Award May 2014

Junior MSNE Department Merit Award Mar 2014

Eagle Scout Rank (Boy Scouts of America) May 2009

Organizations and Leadership

Rice Materials Science and Engineering Society Founder and President Oct 2013-Apr 2015

AIAA Rocketry Team Member Aug 2013-May 2014

Material Advantage Member Aug 2012-May 2015

Community Service Council Representative Aug 2011-May 2012