

BARBARA KRUSE

MECHANICAL DESIGN ENGINEER

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OBJECTIVE

To create innovative and elegantly designed products - I'm seeking a full-time position working with a dynamic product design team, where I can utilize my strong creative, technical and leadership skills to create high quality product and design.

EXPERIENCE

Touch Interface Products, Mechanical Design Engineer **Immersion Corporation**

10/2005 – present
San Jose, California

- Extensive mechanism design for actuators, test fixtures, and systems integrations.
- Prototype design and fabrication of various force-feedback actuators and systems, including joysticks, touchscreens, and rotary knobs, including custom integration of actuators into customer specified applications. Several designs led to new license agreements as well as patentable technologies.
- Project manager for accelerated fatigue testing for medium volume electromagnetic actuator, including failure analysis, test plan development, mechanical design, management of BOM and associated purchasing, data collection and analysis.
- Design engineer for multi-disciplinary team developing next generation touch feedback technologies.
- Initiated adoption of PDM software for mechanical engineering group, serve as PDMworks administrator for group
- Audited manufacturing process for various applications, as part of yield improvement project. Informed design for future design for manufacturability.
- Data analysis and test fixture design for improved end of line testing.
- Mathematical modeling and FEA analysis for resonant system design for improved tactile perception.
- Initiated adoption of company-wide ECO process

Human Interface Robotics, Graduate Student Researcher **Human Engineering Lab, University of California, Berkeley**

8/2002 – 5/2005
Berkeley, California

- Mechanical Design for human worn robotic devices for augmentation of lower extremities.
- Design, built and tested control and mechanical systems for power-assisted prosthetic knee. Presented design to lead engineers and president of Blatchford Prosthetics Group.
- Developed Mathematical Simulation for optimization of transmission of motorized knee to allow power regeneration in level walking or descents.
- Analysis and mathematical simulation of human walking dynamics to access power needs for knee and ankle joints with emphasis on implementing passive actuation at ankle.
- Developed Solidworks models and drawings for rapid prototype and machined aluminum components.
- Presented prototype to Natick Human Factors Lab for testing on soldiers for ergonomic assessment

Therm – Designer, Project Manager, Fabricator **Eccentric Design**

2/2003 – 9/2004
Oakland, California

Metal Fabrication for kinetic sculptural artwork electronic and mechanical design, project management for paid performances. Served as part of production team for Firegarden Performance at Herbst Pavilion, Fort Mason Center in San Francisco, California.

References available upon request

EXPERIENCE

daVinci Project and 3-D Visualization Lab Virginia Commonwealth University

**6/2001 – 2/2002
Richmond, Virginia**

Assisted with the development of a unique program between Sculpture and Mechanical Engineering Departments. Facilitated interactions between disciplines, including course planning, teaching assistance and grant writing. Planned, acquired equipment for, and managed 3-D Visualization Lab for developing and producing 3-D models using rapid-prototyping technology

Exhibit Fabrication – Electronics Engineer Science Museum of Virginia

**5/1999 – 6/2000
Richmond, Virginia**

Designed, built, tested and maintained electronic control systems for interactive educational exhibits. Interfaced multi-media devices, programmed BASIC Stamp microcontrollers. Designed and built circuit boards. Redesigned outdated control systems. Worked with exhibit designers to develop future exhibits.

EDUCATION

University of California, Berkeley Masters of Science, Mechanical Engineering

8/2002 – 8/2005

- *Masters Thesis* - Design of Power-Assisted Prosthetic Knee with Regenerative Braking
- *Advisor* – Professor Hami Kazerooni, UC-Berkeley
- *Research Areas* – Human Walking Dynamics, Mechanical Design, Prosthetic Design, human-machine interaction, human factors
- *Coursework* – Advanced Electro-mechanical Design, Product Design, MEMS Design and Optimization, Real-time Motor Control, Control Theory

Virginia Commonwealth University, Richmond, Virginia Bachelors of Fine Arts, Sculpture Bachelors of Science, Mechanical Engineering

9/1996 – 6/2002

- Graduated Magna Cum Laude with dual degree
- *Coursework* – Mechatronics, Thermodynamics, Heat Transfer, Robotics, Controls, CAD, Motor Control, Materials, Sculpture, Design

SKILLS

Technical – Mechanical Design and Assembly, Sheet Metal Design, Design Optimization, Real-Time motor control, Microcontroller Programming, Electro-magnetic design, FEA Electrical Wiring

Software – Solidworks, PDMworks, COSMOSWorks, Agile, Matlab, Simulink, XPC, Adobe Illustrator, Photoshop, Dreamweaver, Microsoft Project

Design – Strong creative process and concept generation, accomplished in both 2-dimensional and 3-dimensional artworks

Personal – Strong leadership and communication skills, project management, experience working with teams of diverse individuals both across discipline and cultural backgrounds

AWARDS AND HONORS

- Named Inventor on 3 patent applications, submitted Q4 2007
- Received company team recognition for novel joystick prototype design, 2007
- Received company individual award for design and implementation of company-wide ECO process, 2006
- National Science Foundation Graduate Research Fellowship, 2002
- Firegarden Grant for the Arts, 2004

PERSONAL INTERESTS

- Maintain a studio space in Art/Engineering Co-operative
- Competitive Cycling, Roaring Mouse Cycling Team
- San Francisco Triathlon Club