81 Mt Vernon St
Melrose, MA 02176

Calvin Toothaker

Mechanical Engineer

608-213-7969
catoothaker@gmail.com

CAREER SUMMARY

I specialize in bringing innovative tech products from concept to production with expertise in CAD modeling and finite element analysis using SolidWorks. My holistic design approach emphasizes creativity, manufacturability, and ease of assembly. I have designed complex mechanical systems for diverse applications, including industrial automation machinery, a seven degree of freedom (7 DOF) collaborative robot, and an IP67, MIL 810F-standard industrial headset.

SKILLS

Technical Skills: New Product Development, Design for Manufacturing/Assembly (DFM/DFA), Materials Selection, Prototyping, Design of Experiments, Offshore/Contract Manufacturing Management, Vendor Communication, GD&T
Manufacturing Knowledge: Die Casting, Injection Molding, Sheet Metal, Weldments
Software: SolidWorks (Expert in surfacing and FEA simulation), Empower PLM (Omnify), Netsuite, JIRA, Confluence, MS Office
Leadership: Open Communication, Conflict Management, Ethical Decision Making, Fostering Trust & Respect

WORK EXPERIENCE

BERKSHIRE GREY **Bedford, MA**
Principal Mechanical Engineer & Director of HW Engineering **7/2018-present**

Management:

- Boosted morale through knowledge-sharing, technical training, and promoting collaboration
- Led quarterly hardware all-hands meetings to share technical innovations and retrospectives
- Delivered annual performance reviews and aligned individual goals with company priorities
- Held 1:1 meetings with 12 reports to ensure job satisfaction, identify improvements, and assist with career development

Technical Project Management:

- Spearheaded project scheduling and task planning using Jira and MS Project; ensured alignment with company goals
- Conducted daily stand-up meetings with my team to identify progress and help remove any blockers
- Created product roadmaps based on feedback from both internal and external stakeholders

Individual Contribution:

- Conducted FEA studies to determine strength and stiffness of welded structures
- Owned product development for 4 complex end of arm tools from requirements through manufacturing
- Designed test fixtures for accelerated testing of our components
- Developed V&V plans to ensure product quality
- Worked contract manufacturers leading to cost reduction and better designs for manufacturability and assembly
- Using Omnify (Arena) PLM, wrote engineering change orders to communicate a change to all affected stakeholders
- Conducted proof of concept reviews, preliminary design reviews, and critical design reviews
- Used 3D Printing and other common shop tools for rapid prototyping of new products

RETHINIK ROBOTICS **Boston, MA**
Senior Mechanical Engineer **08/2015 – 7/2018**

- Expedited transition from prototype to mass production; focused on manufacturability, reliability, and cost reduction
- Leveraged SolidWorks for design and analysis of 7 DOF robot arm and a quick change tool plate
- Designed factorial experiments for verification testing
- Authored assembly instructions to uphold quality from our contract manufacturers
- Solved thermal issues in robot arm using custom design heat sinks

SONETICS CORPORATION **Portland, OR**
Mechanical Engineer **03/2011-02/2015**

- Launched 4 product lines, including a redesign of the company's flagship product, leading to 60% increased revenue
- Managed offshore vendors and manufacturers to ensure high product quality
- Focused on part function, DFM, DFA, and cost early in the design process
- Addressed a unique customer need, leading to the largest order in company history

SRS ENERGY **Philadelphia, PA**
Lead Reliability Engineer **09/2008-01/2011**

- Managed testing for a thin film photovoltaic product, achieving UL certification of a building integrated PV roof tile
- Implemented a comprehensive testing program, including building out an in-house test lab
- Assisted in the setup of a manufacturing facility, from equipment qualification to process development

ARIES ELECTRONICS **Bristol, PA**
Product Engineer **01/2008-08/2008**

- Designed engineer-to-order chip scale, test, and burn-in sockets
- Automated CAD modeling for a major product line using VBA with SolidWorks, substantially reducing engineering time

HONDA OF AMERICA MANUFACTURING **East Liberty, OH**
Product Development Engineer **02/2007-01/2008**

- Collaborated with R&D to ensure design feasibility early in vehicle development
- Addressed design and manufacturing issues during both product development and production stages
- Conducted investigations on the manufacturing floor to determine root causes of failures
- Reviewed 2D and 3D models in CATIA to identify any potential design weaknesses

WOLF APPLIANCE CO., LLC **Fitchburg, WI**
Reliability Engineering Co-op **05/2005-12/2006**

- Designed, built, and operated test fixtures to simulate life cycle testing of new components

ERIK'S BIKE SHOP **Madison, WI**
Head Bicycle Mechanic **03/2003-05/2005**

PATENTS

WO2023141260A1 - Systems for object processing with programmable motion devices using yawing grippers
US20200338728A1 - Systems for maintaining vacuum hose life in hose routing systems in motion systems
US11167411B2 - Quick-release mechanism for tool adapter plate and robots incorporating the same
WO2021158770A1 - End-effector, programmable motion device and method of operating a programmable motion device
US20160100238A1 - Ruggedizer for communications headset
US9838776B2 - Restricted ball and socket joint for headset earcup
USD790506S1 - Communication headset

EDUCATION

UNIVERSITY OF WISCONSIN – MADISON Madison, WI
B.S. Mechanical Engineering 01/2002 – 12/2006

Relevant Coursework: Mechanics of Materials, Electronic Circuits and Power Conversion
Certified SolidWorks Professional – Advanced Surfacing
Certified SolidWorks Professional – Sheet Metal