

S. Sane Cassidy

Mechanical Design Engineer

Seattle, Washington
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Objective

Experienced, Stanford-educated designer seeking to start new career after a hiatus.

Interested particularly in the early stages of product development, when design space is wide open and the challenges can be ambiguous and open-ended.

Willing to consider more junior roles as a gateway into a field or industry new to me.

Skills

10+ years of experience in product development across various industries

3D Modeling and Drafting: SolidWorks, SolidWorks PDM, Solid Edge

Rapid Prototyping: Have designed parts for and personally operated 3D printers, laser cutters, mills and lathes (both manual and CNC).

High-Volume Manufacturing: Have designed parts for and conducted DFM process for manufacture at volume by machining, plastic injection molding, sheet metal fabrication.

Experience

Mechanical Design Engineer / Intel Corporation

APRIL 2013 - MAY 2019, SANTA CLARA, CA

Designed and drafted components for optical transceiver products and lab test equipment, including parts to be manufactured by machining, injection molding, die casting, sheet metal fabrication, 3D printing, and laser cutting. Worked with manufacturers to refine designs for manufacturing. Developed specs, tolerances, and documentation to meet performance, cost and manufacturability goals.

One example: Managed design-for-manufacture process of a critical component used in one-quarter of the division's products. Interfaced directly with contract manufacturer and redesigned part features as necessary to meet cost and manufacturability goals. This effort translated to a cost savings of 90% for this component, when compared with nearest commercial offering. Estimated total savings to the company will be tallied in the millions of dollars over the life of the product. Was offered promotion for my contributions.

Designed components for, coordinated manufacture of, and personally assembled several dozen widely varied assembly work stations used in optical laboratory environments. Worked with product managers to develop requirements for the work stations and, once assembled, instructed lab technicians in their use. Enabled testing, experimentation, and burn-in process for development of novel components for optical transceiver products as new product lines were being developed.

Operated and administrated a high-end 3D printer (a Stratasys PolyJet machine) to make prototypes, marketing showpieces, and fixtures for laboratory testing and high volume manufacturing. Designed original parts for printing; modified design of existing parts to be optimized for printing; and taught others how to do the same. Wrote an online handbook for machine operation and maintenance.

Was local administrator for SolidWorks PDM document control system. Educated other team members in appropriate use of the system, and intervened when questions or problems arose.

Contract Mechanical Engineer / Radius Product Development

JUNE 2010 - AUGUST 2010, CLINTON, MA

Designed prototypes of compacts for a leading cosmetic company. Worked with industrial designer to refine aesthetic elements. 3D printed components on-site with an FDM machine, and assembled “works-like” prototypes for review by client company.

Performed lab testing on prototypes of an industrial fluid flow product. Observed and recorded mixing rates of various apertures in a custom nozzle that was designed to use the Venturi effect to mix a containerized chemical with a stream of water. Data generated was used to refine design of the nozzle and its internal apertures.

Contract Mechanical Engineer / Cambridge Consultants

MARCH 2010 - JUNE 2010, CAMBRIDGE, MA

Worked on the design of a novel medical device at both component and assembly level. Specifically, created working models for user studies and animal trials. Engaged rapid prototyping vendor to make individual components by SLS 3D printing, then personally assembled functional prototypes. Prototypes were evaluated by other team members, then used in animal trials.

Product Development Designer / Pelican Products

SEPTEMBER 2007 - JUNE 2009, SOUTH DEERFIELD, MA

Designed and drafted new parts of cases and shipping containers for military, commercial, and industrial use, specifically parts that were manufactured by plastic injection molding, machining, and foam lamination. Developed specs, tolerances, and documentation to meet performance and manufacturability goals.

Worked with on-site manufacturers to refine designs for manufacturing. Worked with on-site test lab to evaluate merits and weaknesses of various designs. Created documentation to hand off refined designs to high volume manufacturers.

Prototype and Design Engineer / IMP LLC

MAY 2006 - JULY 2007, NORTH GROSVENORDALE, CT

Trained in use of three-axis CNC mill. Machined components for local client businesses spanning a variety of industries including power generation, textiles, race car engine manufacture, and medical devices.

Invented company’s first wholly original product, an innovative skate vehicle. Designed components and assemblies in SolidWorks, then manufactured and assembled the first prototype. Wrote the first draft of the patent.

Education

Stanford University / Master of Science, Mechanical Engineering

SEPTEMBER 2010 - MARCH 2013, STANFORD, CA

Focused on product design and manufacturing. Personally made parts with manual mill, manual lathe, CNC mill, RTV silicone, 3D printing, and laser cutters.

Invented a novel construction set based on the architectural design principle known as tensegrity, which concerns a class of structures whose compressive elements are wholly discontinuous. Used the invention in case studies and projects across a variety of courses, including writing the first draft of a patent for it, developing a business plan to sell it, and manufacturing scores of prototype concepts.

Developed method for adapting any arbitrary wireframe surface into a tensegrity. Applied method to create compressible, collapsible, and organically-curved constructions with no known precedent. Six months after graduation, presented method, prototypes, and designs to a division at NASA working on a tensegrity robot intended to explore the surface of Jupiter's moon Europa.

Worcester Polytechnic Institute / Bachelor of Science, Mechanical Engineering

AUGUST 2003 - MAY 2006, WORCESTER, MA

Graduated with High Distinction, WPI's equivalent of summa cum laude.

Major Qualifying Project (i.e. senior capstone project): Designed, engineered, manufactured components for, and assembled working prototype of a novel mechanical wheelchair operable by a single upper appendage, intended to meet needs not met by electric wheelchairs, particularly for persons with hemiplegia.

Won second place in competition of all mechanical engineering senior capstone projects in the year of my graduation. Two years later, wheelchair was presented at the annual conference of the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA).