

Siyuan Cheng

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EDUCATION

Columbia University <i>Master of Science, Mechanical Engineering, [GPA: 3.47/4.00]</i> Courses: Product Design for Manufacturing, Advanced Manufacturing Processes, Advanced Mechanics of Fluids, Advanced Heat Transfer	New York, United States Feb 2023
University of Shanghai for Science and Technology <i>Bachelor of Engineering, Energy and Power Engineering, [Major GPA: 3.77/4.00]</i> Courses: Mechanics of Material, Mechanical Design, Thermodynamic, Measuring and Control Technology, Metal Working Practice	Shanghai, China Jun 2021

WORK EXPERIENCE

Huawei Technologies Co., Ltd - Structural Design Engineer <i>4D Automotive Radar System Design</i> <ul style="list-style-type: none">Collaborated with a cross-functional team to design innovative plastic and sheet metal structures for radar systems, optimized for EMC shielding and heat dissipation. Implemented an efficient assembly process to achieve IP67 protection and a 14% reduction in costs.Designed and modeled the radar parts and assembly with CREO, and drafted 2D engineering drawings based on GD&T, including plastic bottom shell and radome, plastic metallized waveguide antenna, and stamped aluminum shielding cover.Conducted first-principles analysis to simplify radome structure, reducing cost by 300% compared with the previous generation.Performed static and dynamic simulations with ANSA and Abaqus before releasing design for structural performance evaluation and optimization. Improved Radar impact resistance 50%.Lead the supply chain quality optimization of radar parts, conduct MFG reviews and experiments with suppliers to investigate potential failures, and update the identified control points in engineering drawings and supplier's SOP. Improve product yield from 88% to 95%.Took charge of the root cause analysis of production line manufacturing problems and provide optimization solutions. Reduced assembling processing time by 20%. <i>Plastic Laser Transmission Welding Process Optimization</i> <ul style="list-style-type: none">Designed a prototype of Radar shell to validate plastic laser welding technology and conducted a thorough technical evaluation of the injection mold solution designed by suppliers, provided technical support on quotations for purchasing engineers.Conducted tolerance analysis on the coupling installation of the upper and lower shells and welding fixtures to avoid welding misalignment or installation interference.Performed DOE to analyze and optimize injection molding and LTW parameters, achieving a 42% increase in bonding strength. <i>Optical-mechanical bracket structure design and optimization</i> <ul style="list-style-type: none">Designed a metal bracket for bonding the optical machine lens and PCB board with laser transmitter; Chose Kovar alloy for it extremely low CTE to reduce the influence of thermal deformation on the lens position accuracy.Conducted metallographic and EDS analyses to investigate the corrosion failure mechanism of Kovar alloy coating. Developed an advanced electroplating technique, enhancing corrosion resistance by 50%.	Shanghai, China Apr 2023 – Present
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ACADEMIC PROJECTS

Research on Fluid Mechanics of Micropumps Research Assistant <ul style="list-style-type: none">Designed and 3D modeled a micro piezoelectric pump with a simple structure and size of only 25mm*25mm*5mm.Conducted simulations by COMSOL Multiphysics to investigate the micropump's operating principle, failure mode, and liquid flow.Provided a practical approach for enhancing the flow rate by analyzing and optimizing the crucial factors of the micro-pump.	New York, United States Jan 2022 - Jun 2022
MEMS Scanning Mirror Design Fu Foundation School of Engineering and Applied Science <ul style="list-style-type: none">Led a team to design a piezoelectric MEMS scanning mirror with a wide scan angle for light beam manipulating applications.Constructed a 3D model of a scanning mirror with SolidWorks and conducted the statics and dynamics simulations using AnsysOptimized the structure of the MEMS mirror based on the simulation result to achieve an inclination angle of 25°.	New York, United States Sep 2021 - Dec 2021
Analysis and Design of Microchannel Heat Sink Institute of Particle and Two-Phase Flow Measurement <ul style="list-style-type: none">Designed a novel microchannel heat sink featuring bionic fish scale fins to attain a heat dissipation efficiency of 100w/cm². Analyzed the physical mechanisms based on the simulation results and optimized the microchannel design to reduce pressure drop and provide a better coefficient of performance than traditional microchannels.	Shanghai, China Dec 2020 - Jun 2021

SKILLS

- Programming: Python 3.0(with NumPy) | MATLAB
- Computer Aided Engineering: SolidWorks | CREO | CATIA | ANSA | Abaqus | ANSYS | COMSOL