STEVEN WANG, PhD
Phone: (408) 320-7975
Email: stevenking0968@gmail.com

Qualifications

- Extensive knowledge of mechanical engineering, optics, automation controls, semiconductor probe cards as well as material science and material selection in design.
- Expertise in opto-mechanical, opto-electronic and precision mechanical product development and strong experience with manufacturing, assembly, and package design.
- Excellent track record of creating successful products, starting from requirements and creating designs that turn into prototypes and enter production. Skilled in organizing test programs to validate concept designs and performing data analysis to verify product performance.
- Strong team leadership and teamwork skills. Good at time management and organization. Excellent analytical and problem-solving ability. Good communication and interpersonal skills. Possess risk and cost management knowledge.

Skills and Expertise

- PTC CREO (Pro/E), SolidWorks, NX, AutoCAD, FEA, PDM etc.
- ZEMAX, Optics and RayTrace analysis
- BOM/ECO, FMEA, and QA
- AMSE 14.5M-1994/ISO, GD&T, Tolerance Stack Ups
- Automation/Robotic/Sensors/Electronics
- DOE, Product test plan/procedure and report
- Working with domestic and overseas manufacturers.
- Machine Shop and CNC, 3D Print and Quick Prototype

Education

PhD Mechanical Engineering, Xi'an Jiaotong University, China
M.S. Mechanical Engineering, Xi'an Jiaotong University, China
B.S. Machine Manufacturing Tech. & Automation, Xi'an Jiaotong University, China

Recent Work Experience

MOJO VISION, Saratoga, CA Project Leader, Distinguished Mech Engineer
2019 - Present
I lead the development of advanced assembly processes for AR/VR smart contact lenses. Delivered projects include:

- Innovatively developed automatic Femtohm lens attaching station
- Automatic flex circuit board closing cone shape forming station
- Multilayer parts attaching station
- Dynamic nitrogen high pressure chamber for processing optical materials

Also designed many kinds of fixtures tooling for various testing and developing purposes.

II-VI INC, NPI, San Jose, CA Sr. Project Manager, Principal Mechanical Engineer
2018 - 2019
I was project leader of Photop NPI. Work included:

- Developed a very compact size cell growth monitoring instrument mechanical design from concept to prototype, to customer acceptance. Now in mass production. This work included designing the CCD image sensor adjustable mechanism, lens focus adjustable mechanism, object mirror direction adjustable mechanism and illumination mirror adjustable mechanism, the injected enclosure with LCP GF and locking mechanism design etc.
- Designed Lidar opto-mechanism and rotating mirror mechanism, dynamic balance analysis and developed dynamic balance test stations.
- PDM Administrator

MOLEX, INC (Oplink). Fremont, CA Sr. Project Manager
2016 - 2017
Under my leadership, my team delivered the following:

- 100G COB transceiver module and 100G 4 channel integrated TOSA prototype development, production equipment development and product transfer to production.
- 100G COB transceiver development and transfer to production.
- 100G transceiver whole assembly flow chart and procedure/process.
- 100G 4 channel TOSA prototype, developed TOSA assembly procedure and process, and equipment selection and creation.
- 100G TOSA automatic lens alignment Station/Machine, and CoC attachment stations.
- Successfully performed production process testing and resolved many automation equipment, hardware and software issues.

GOPRO, INC. San Mateo, CA Sr. Opto-Mechanical Engineer
2014 - 2016
Worked on lens module development, which included designing injection plastic parts, MCO, reviewing vendors' DFM and test results, selection of parts' materials based on different properties. Main achievements:

- Improved the lens mount design by breaking it into two separate components: lens barrel and mount with image sensor, made with different materials that complemented each other, reducing the peak focus thermal shift from 14 to 11.5 um.
- Used FMEA to successfully resolve lens module and heatsink waterproof issues. Achieved waterproofness at 15-meter water depth.
- Developed and patented the Integrated Sensor and Lens Assembly with Differential Thread Adjustment (see patent list) for GoPro's next generation action camera.
- Used lens ray trace generation and analysis to redesign the lens to eliminate ghosting and flare.
- Designed and developed optical alignment tooling and fixtures to assist the Image Quality team with testing.

FORMFACTOR, INC, MP, San Jose, CA Principal R&D Mech. Engineer & Project Lead
2011 - 2014
Improved the mechanical and electrical properties of existing parts/components. Developed new probe card assembly methods, as well as new fixtures (including a probe head assembly fixture) and production tools. Main contributions:

- Invented an automatic probe insertion (robotic) station that greatly sped up the production cycle.

- Developed a measurement device, which directly interacted with the probe to obtain highly precise measurements of the current carry capacity and balance contact force.
- Developed an intelligent probe distal-end sanding machine to meet PH DE 7um planarity requirement.
- Interposer FMEA, developed a new super-button, fixed the previous interposer high CRES issues.
- Redesigned an operator-used tool, which reduced probe damage by over 90%, greatly lowering expenses and improving probe card quality. Also developed and improved numerous tools and fixtures for production.

PHYSICAL OPTICS, Torrance, CA Principal Opto-Mechanical Engineer
2009 - 2011
My main projects and contributions include:

- I developed a large flight data recorder that could survive >50G impact.
- Optical coherence tomography surgical debridement assistance device; Infrared night vision security system with automatic tracking mechanism; Brainwave monitor system etc.
- Integrating a shadow laser with an inductor sensor on a web scanner to build a thin film measurement system that possessed accuracy, repeatability and stability all under 1μm.

TOUCHDOWN TECH, Baldwin Park, CA Principal Mechanical Engineer & Project Lead
2004 - 2009
As the first mechanical engineer at this startup, I developed all the assemblies/integrations for the company's MEMS based wafer probe-card products, from initial concept to prototype to production. Main accomplishments:

- Adjustable probe card mechanisms with precise differential adjustment and locking technologies.
- Non-adjustable probe card mechanisms, as well as a leveling platform for both adjustable and non-adjustable probe-card technology (patented).
- Developed scalable full wafer probe-card mechanisms for testing 300mm wafer and multi-wafer probe head alignment technologies (patented).
- Developed the sides and corners tilting technology and the mechanism to control large sized probe head flatness, as well as the on-field probe head replacement and leveling technology and jigs mechanism.
- Also planned and coordinated extensive product testing, FEA, as well as all tooling and fixtures designs, for clean room wafer etch and wire bond, ball bond to support production.

Awards

I received multiple awards for advancement of science and technological research:

- First Prize: Laser Holographic and Speckle Measurement Technique and HSC-900 Analysis System, National Education Commission
- Third Prize: NG-A107 Auto-lathe's Dynamic Characteristics and Structures, National Education Commission
- Third Prize: Laser Holographic Measurement Technology and JD-83 Movable Laser Holographic Camera, National government

My Patents

- Integrated Sensor and Lens Assembly with Differential Threads Adjustment (GoPro)

- Reconfigurable mass data recording method and system, SN: 13/440,891
- Motorized curtain rack system, SN:61/393,923
- Drawer slide and locking mechanism, SN:12/768,669,
- Adjustable/Non-adjustable Precision Optical Mounts, Patent Pending (This IP was sold to Newport Corp.) Probe card Assembly, Patent No. US 7,365,553 B1, April 29, 2008
- Probe head with machined mounting pads and method of forming same, Patent No. US 7,180,316 B1, 2007
- Adjustable Optical Signal Collimator, Patent No. US 7,010,193 B1 2006
- Integrated Polarization Beam Combiner, Patent No. US 6,919,989 B1 2005
- Multi-Channel Polarization Beam Combiner/Splitter, Patent No. US 6,973,224 B1 2005
- A Servo-Damper of a Well Drilling Machine, Patent No. ZL91228657.1A, 1992, China Lighter with solid fuel, Patent No. ZL89221370.1A, 1990, China