STEVEN WANG, PhD
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Qualifications

Distinguished Mechanical Engineer with 20+ years of expertise in opto-mechanical design and automation, specializing in developing innovative solutions for AR/VR, semiconductor, and optical systems. Track record of 12+ patents and multiple national awards. Proven success leading global teams and driving products from concept to mass production.

Skills and Expertise

- **Design Tools:** PTC CREO (Pro/E) | SolidWorks | NX | AutoCAD | CATIA | ZEMAX OpticsStudio | ANSYS FEA | PDM
- **Optics & Precision:** Optical design & ray tracing | Wavefront analysis | Precision assembly | Electronic/optical packaging | GD&T (ASME Y14.5-2018) | Advanced tolerance analysis
- **Manufacturing:** Machine shop & CNC programming | 3D printing (FDM/SLA/SLS) | Clean room processes | Global supplier management | DFM implementation | Quality control systems
- **Automation & Control:** Industrial robotics | Motion control | Sensor integration | Python | MATLAB | PLC/HMI | Custom test equipment
- **Process & Quality:** DOE | FMEA | ISO 9001:2015 | Test development | BOM/ECO management | Production optimization

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

O-NET USA, San Jose, CA *Principal Scientist*
2023 – Present
Lead development and optimization of Cavity Ring-Down optical systems, focusing on process automation and yield improvement. Key achievements:

- Designed 8-channel thermal epoxy curing system, enabling parallel processing of 8 Ring-Down devices with precision temperature and timing control, resulting in 800% throughput increase
- Engineered smart optical alignment jig for bench assembly that reduced labor time by4+ hours per unit, lowered production costs by 30%, and improved first-pass yield from <50% to >90%
- Developed fully automated optical alignment station for ringdown cavity front and rear mirrors, incorporating novel square ringdown cavity design and custom tooling that increased alignment precision by 40% and eliminated manual adjustments
- Conducted comprehensive simulation analyses (thermal, vibration, stress, displacement) that identified and resolved multiple critical design issues before production
- Invented and patented fiber winding machine with innovative tray design that reduced fiber damage dramatically
- Created patented EMI sealant solution that solved the dual- vertical fiber array EMI sealant issue and make the device easy assembly

MOJO VISION, Saratoga, CA *Project Leader, Distinguished Mechanical Engineer*
2019 - 2023
Spearheaded development of automated assembly processes for AR/VR smart contact lenses. Managed $1M capital equipment program and engineering team of 5. Key achievements:

- Designed automated Femtohm lens attachment system achieving sub-micron precision, reducing manual labor by 80% while improving yield from <45% to >80%
- Developed novel flex circuit forming station that creates cone-shape flex pcb, enabling consistent 50μm tolerance across all reflow pads
- Pioneered multi-stage automated chip attachment process integrating precision placement (<5μm accuracy) with optimized reflow profiles
- Designed high-pressure nitrogen processing chamber (400 PSI) for optical materials process, including automated controls
- Created comprehensive test fixture ecosystem supporting product development cycle, reducing validation time and enabling 24/7 automated testing

II-VI INC, NPI, San Jose, CA *Sr. Project Manager, Principal Mechanical Engineer*
2018 - 2019
Led global team of 30+ engineers in developing next-generation optical and LIDAR systems, while serving as Solidworks PDM Administrator for the organization. Orchestrated full product lifecycle from concept through mass production, achieving key milestones in biotechnology and autonomous vehicle applications. Key achievements:

- Led development of revolutionary cloud-connected cell monitoring system, integrating CCD imaging with automated optical adjustment mechanism (lens focus, mirror, illumination).
- Designed Lidar opto-mechanism and rotating mirror mechanism, dynamic balance analysis and developed dynamic balance test stations.
- PDM Administrator

KLA-Tencor, Milpitas, CA *Mechanical Engineer*
2017 – 2018
Mechanical engineering contractor working on semiconductor inspection tooling. Developed a Wafer Flatness Measurement Device that works under a high vacuum chamber.

MOLEX, INC (Oplink). Fremont, CA *Sr. Project Manager*
2016 - 2017
Led cross-functional team in developing and commercializing next-generation 100G fiber optic telecom components. Spearheaded full product lifecycle from prototype to mass production.

- Architected and launched industry-leading 100G COB transceiver module and 4-channel integrated TOSA
- Designed an automated manufacturing system including lens alignment and Chip-on-Chip (CoC) attachment stations.
- Developed comprehensive production process including flow optimization, quality controls, and equipment specifications that became company standard
- Resolved critical automation bottlenecks, resulting in high equipment uptime and 40% yield improvement

GOPRO, INC. San Mateo, CA *Sr. Opto-Mechanical Engineer*
2014 - 2016
Led advanced lens module development for next-generation action cameras, focusing on optical performance optimization and waterproof design. Key achievements:

- Engineered patented Integrated Sensor and Lens Assembly with Differential Thread Adjustment, enabling precise optical alignment for enhanced image quality
- Redesigned lens mount system with 18% better thermal stability by reducing peak focus shift from 14μm to 11.5μm
- Implemented comprehensive FMEA to resolve critical waterproofing challenges, successfully qualifying lens module and heatsink assembly for 15-meter underwater operation
- Developed ray trace analysis methodology to eliminate lens ghosting and flare, significantly improving image quality in high-contrast environments

FORMFACTOR, INC, MP, San Jose, CA *Principal R&D Mechanical Engineer & Project Lead*
2011 - 2014
Led R&D initiatives for semiconductor probe card technology, revolutionizing assembly methods and automation systems.

- Invented an automatic probe insertion (robotic) station that greatly sped up the production cycle.
- Engineered precision measurement system for probe current capacity and contact force, enabling first-time verification capability for critical performance parameters
- Designed automated sanding system with 7μm probe head planarity, meeting high semiconductor test requirements
- Developed super-button technology through FMEA analysis, resolving critical interposer conductivity failures
- Created damage-resistant operator tool that reduced probe failures 90%, saving >$500K/yr in replacement costs

Awards

I received multiple awards for the 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

Patents

- Optical Fiber Guide and Winding Tray Device and Method, EFS ID: 48439611/AN:18233795
- Systems and Methods to Reduce EMI, EFS ID:48175721/AN:18211689
- 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
- Probe head with machined mounting pads and method of forming same, Patent No. US 7,180,316 B1
- Adjustable Optical Signal Collimator, Patent No. US 7,010,193 B1
- Integrated Polarization Beam Combiner, Patent No. US 6,919,989 B1
- Multi-Channel Polarization Beam Combiner/Splitter, Patent No. US 6,973,224 B1
- A Servo-Damper of a Well Drilling Machine, Patent No. ZL91228657.1A, China
- Lighter with solid fuel, Patent No. ZL89221370.1A, China