

Roy (Dai-Ying) Wu

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SUMMARY

I am a Thermo-Electro-Mechanical Engineer with a diverse background. The majority of my work and project experience has involved thermo-electro-mechanical analysis/designs. I also have experience with full-cycle design, integration, and testing of consumer electronics, particle accelerator-related components (from linac stages to RF power dividers and solid-state amplifiers), HPC servers, and robots. I have taken multiple leadership roles in teams ranging from 4 to 10 students and professional members, and have additional experience with project management, product development, sponsorship, and website development. I am highly self-motivated, disciplined, and detail/team-oriented with a real passion for learning. My goal is to grow as a person and as a professional, every day.

WORK EXPERIENCE

Coolanyp

Principal Engineer

Dec. 2016 – Present

Kirkland, WA

- Represent Coolanyp at meetings with clients and trade shows (i.e. CES 2019 and 2020)
- Lead a small group of mechanical/manufacturing engineers and technicians and provide technical guidance and direction in design, test and manufacturing
- Responsible for all mechanical designs, CAD model development, engineering drawing development, FEA/CFD simulations and analysis, prototyping, and customer interface
- Spearheaded a team of manufacturing/quality engineers to improve the brazing/sealing yield rate of our product from 30% to 95% with the help of CFD software. Work side by side with manufacturing and quality engineers to resolve issues
- Developing and commercializing a novel liquid-cooling solution for high-end workstation and gaming PC
- Developing proprietary brazing furnace to reduce the brazing cost of our products by 60%
- Participate in business development and writing proposals
- Designed and prototyped the following with SOTS (Coolanyp's novel passive heat-transfer device):
 - Compact thermal solution for a client's EV Lithium-ion battery pack
 - Air-cooled thermal solutions for a client's next-generation FPGAs (up to 500W)
 - Natural-convection thermal solution for a client's next-generation 5G network device
 - Thermal solution for a client's next-generation PV device
 - Compact and redundant liquid-cooling solution for a 1U OCP server
 - Compact thermal solution for a client's 6U VPX embedded system
 - Air-cooled thermal solution for a client's EDSFF based Intel SSD solution
- Developed company website (www.coolanyp.com) from the ground up

Super Micro Computer

Thermal Engineer

March, 2015 – Dec, 2016

San Jose, CA

- Developed and validated thermal solutions for FatTwin and GPU servers including air duct design, fan selection, heatsink optimization, etc.
- Defined fan speed control algorithm to optimize acoustics and power efficiency
- Performed fan-level and system-level airflow testing and CPU heatsink characterization
- Wrote scripts for automated data acquisition and analysis in both Windows and Linux environments
- Worked with Asia based CMs to select cooling fan and heat sink based on system level thermal specification
- Performed system-level CFD analysis, conducted thermal stress test, and generated thermal test reports
- Collaborated with internal functional teams to optimize system layout and component placement

FAR-TECH

Staff Mechanical Engineer

September, 2011 – March, 2015

San Diego, CA

- Designed state-of-the-art linear accelerator, Beam Position Monitor and Solid-State Power Amplifier using SolidWorks

and ANSYS HFSS under the guidance of lead scientists

- Owned the mechanical design of the Solid-State Power Amplifier that we built for Thomas Jefferson National Lab
- Performed 3D modeling design works in SolidWorks according to company know-how and feedback from external shops (machining, brazing, etc.)
- Performed thermal and mechanical deformation FEA studies in Solidworks and RF simulation in ANSYS HFSS
- Designed jigs and fixtures for manufacturing and testing – e.g., bead-pull system with linear motion system
- Brainstormed and executed ideas for short term manufacturing and future long-term high-volume manufacturing plan
- Interfaced with machine shops and vendors to fabricate parts in timely manner and inspected finished parts
- Efficiently performed laboratory tasks – e.g., assembly of mechanical system, ability to develop measurement procedures, knowledge of basic electronic circuits, and experience in operating RF vector network analyzer, power meter, various amplifiers, thermal measurements

Sony Electronics

April, 2011 – September, 2011

Mechanical Engineering Intern

San Diego, CA

- Created prototype parts using Sony mechanical lab for cost reduction and testing
- Redesigned components using Pro/E to resolve thermal and EMI issues
- Provided engineering analysis involving design, fabrication, setup, and testing
- Conducted thermal, EMI, ESD, and IR validations of new products
- Collaborated with software and hardware engineers to maintain control of the successful launch of two different worldwide set-top box designs to market

EDUCATION

University of California San Diego 2011, B.S. in Mechanical Engineering

Senior Projects: Senior Robot Contest (1st place); Energy Harvesting Buoy (Sponsored by SPAWAR); Quadcopter

PATENTS

- “Hub-link liquid cooling system,” US10191521B2, Coolanyp LLC, Inventors: Peng Cheng, **Dai Ying Wu**
- “Modular computer cooling system,” US20200042053A1, Coolanyp LLC, Inventors: Peng Cheng, **Dai Ying Wu**, Zhe W

PUBLICATIONS

- X. Chang, N. Barov, D. Newsham, **R. Wu**, “Test of an L-Band Energy-Efficiency Solid State RF Power Source,” Proceedings of IPAC2013
- N. Barov, D. Newsham, **R. Wu**, “Cavity bpm for 1300 mhz cryomodels,” Proceedings of IPAC2012
- X. Chang, N. Barov, D. Newsham, **R. Wu**, “Development of the Energy-Efficient Solid State RF Power Source for the Jefferson Laboratory CEBAF Linac,” Proceedings of IPAC2012

OTHERS

- **Skills:** Proficient in 3D Design CAD Modeling Software (SolidWorks, Pro/E, NX), 2D Design Software (AutoCAD), CFD Simulation Software (FloEFD, FloTHERM XT, Autodesk CFD, FloTHERM), FEA Simulation Software (SolidWorks Simulation), wind tunnel, DAQ, MATLAB, GD&T, MS Office, WordPress, DOE, failure analysis, 3D printer, soldering, ultrasonic soldering, parametric/direct CAD modeling; Experienced in machining (manual mill/lathe, welding, CNC router), MathCad, Java, Basic, C, C++, Python, HTML/CSS, LabVIEW, HFSS, RF vector network analyzer, scripting in Windows and Linux environment, ABAQUS, aluminum/copper brazing, PLC, PID controller, Arduino, CMM, DFMEA, PFMEA, PDM (PTC), CATIA, PCBA; Understanding of manufacturing processes including stamping, drawing, injection molding, die cutting, welding Excellent Verbal and Technical Report Writing Skills; Project Management and Leadership Skills
- **Interests:** Basketball; weightlifting; rock climbing; yoga; hiking; traveling; staying active in general; investing
- **Languages:** Bilingual proficiency in English and Mandarin Chinese; elementary in Taiwanese, Cantonese, and Japanese