Dai-Ying (Roy) Wu

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SUMMARY

I am a Thermo-Electro-Mechanical Engineer with a diverse background and 9 years of professional experience. 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 **Dec. 2016 – Present**

Principal Engineer *Kirkland, WA*

- Lead a small group of mechanical/manufacturing engineers and technicians and provide technical guidance and direction in design, test and manufacturing. Represent Coolanyp at meetings with clients and trade shows (i.e. CES 2019 and 2020)
- Responsible for all mechanical designs, CAD model development, engineering drawing development, FEA/CFD simulations and analysis, prototyping, and customer interface. Designed sheet metal enclosures for our product prototype
- Spearheaded a team of manufacturing engineers to improve the brazing/sealing yield rate of product from 30% to 95% by analyzing radiation heating with CFD software. Work side by side with mfg/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 **March, 2015 – Dec, 2016**

Thermal Engineer *San Jose, CA*

- Developed and validated thermal solutions for FatTwin and GPU servers including air duct design, fan selection, heatsink optimization, etc. Fully involved with NPI process of multiple new GPU servers
- Designed injection-molded plastic air shroud and die-casted stiffening bar
- 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
- Managed Asia based CMs/suppliers to select cooling fan and design 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 **September, 2011 – March, 2015**

Staff Mechanical Engineer *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 cryomodules," 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, thermal chambers, NPI, OMM, accelerometer; 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, shock/drop, cycle testing, product validation, tolerance analysis, statistical process control;
  Understanding of manufacturing processes including stamping, drawing, injection molding, die cutting, plating, casting;
  Excellent Verbal and Technical Report Writing Skills, Project Management and Leadership Skills
- **Interests:** Basketball; weightlifting; rock climbing; yoga; hiking; traveling; outdoor activities; investing
- **Languages**: Bilingual proficiency in English and Mandarin Chinese; elementary in Taiwanese, Cantonese, and Japanese