Amin Shobeiri

Electro-Mechanical Design Engineer

Product Design, Thermal Management, Power Electronics Manufacturing, CAD & CAE, Computational and Experimental Mechanics, Research & Development, FEM / FEA, CFD, Additive Manufacturing, Sheet Metal Design, Electrical Safety Compliance with 2 Patents and Experience in Programming, Modeling, & Optimization.

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QUALIFICATIONS

- Master's in Mechanical Engineering, with 5 years of engineering experience (**CAD/CAE**) and **2 US patents**, with a solid grasp of theoretical, computational, and experimental *Solid* & *Fluid Mechanics,* and *Heat Transfer*.
- More than 2 years of work experience in **Power Electronics** and **High-Power Systems**: thermal management, high-current bus bar design, sheet metal & plastic enclosure design, safety compliance (UL & CSA), PCB design, assembly automation, design for manufacturability (DfM) and reliability (DfR).
- Experienced in *Computer-Aided Design* (**CAD**) & 3D Modeling, manufacturing drawings (ASME Y14.5-GD&T†), BOM, costing, DFMEA, rapid prototyping and additive manufacturing.
- Highly experienced in *Computer-Aided Engineering* (**CAE**) computational multi-physics simulations, especially with *Finite Element Analysis* (FEM/FEA): stress analysis, elasticity, large deformations, viscoplasticity, solder fatigue, vibration, modal, and thermal analysis, and *Computational Fluid Dynamics* (**CFD**): convection, fluid-structure interactions, two-phase flow, capillarity, turbulence modeling and particle methods.

RECENT WORK EXPERIENCE

- **Electro-Mechanical Design Engineer** at ***FUTURi Power Inc.*** [Oct 2023-Present]
  Designing the company's product with 3D modeling, safety compliance, thermal management, reliability, manufacturability, costing, rapid prototyping, experimental performance benchmarking, procurement, and supply chain management in close collaboration with a team of electrical engineers.
- **Mechanical Engineer** at ***UBC Power Electronics Lab*** [January-Oct 2023]
  As the scientific lab engineer, providing mechanical support for research in power electronics, specialized in CAD, rapid prototyping with 3D-printing, thermal solutions and experiments, automated PCB assembly, procurement, machining, sheet metal enclsosure design, safety compliance and recruitment of new staff.
- **Reliability Engineering Intern** at ***Daanaa Resolution, Inc.*** [June-Oct 2022]
  In close collaboration with electrical engineering and PCB layout design team, focusing on understanding and analyzing thermo-mechanical/chemical modes of PCB and IC failure and providing insight into better, alternate designs through multiphysics simulations and possible *'mitigation'* strategies, using ANSYS Mechanical and Sherlock.

PATENTS

- **Cooled Modular Power-Converting Electrical Panel** *(US, Canada)* [2023]
  Principal contributer to the mechanical design of the electrical panel and the power modules and designed the waste heat recovery system through a novel ventilation switching mechanism which utilizes the Energy Management System (EMS) with intelligent heat diverting.
- **High-Performance Water Intake Structure** *(US, Canada, EU)* [2021]
  Proposed a novel optimal design through extensive *Two-Phase Flow CFD* simulations for a *Coanda-Effect Screen,* boosting the efficiency up to **70%**, using genetic algorithm methods via **ANSYS Fluent**. In colaboration with *Sea-to-Sky Energy Solutions*, a clean energy hydroelectric facility owner in British Columbia.

COMPUTER SKILLS

- **Mechanical/Electrical Engineering & Simulation:**
  ANSYS: ***Electronics Reliability*** *(Sherlock: Solder/PTH Fatigue, Trace Modeling Techniques, etc.),* ***Solid Mechanics*** *(Mechanical: FEA/FEM, Large Deformations, Elasto-Plasticity),* ***Heat Transfer***, ***Fluids*** *(Fluent: CFD, Turbulence, Two-Phase Flows, Capillarity)* **/ SolidWorks:** *3D & Drawing, Sheet Metal, Electrical Routing, FEM/FEA, Costing, 3DEXPERIENCE Platform* **/Altium:** *PCB design* **/AutoCAD†:** *Drawings* **/ Abaqus:** ***Solids*** *(FEA/FEM) &* ***Heat Transfer*** **/CATIA:** *CAD, 3D Modeling.*
- **Programming:**
  MATLAB / Microsoft Excel / Wolfram Mathematica / Linux.

EDUCATION

- **Master of Applied Science (MASc)** in **Mechanical Engineering**, **The University of British Columbia (UBC)**, Vancouver, BC, Canada. [2019–2021]
  Cumulative **GPA: 89.2%**