Evidence of Excellence for Tesla's Thermal Systems Aerodynamicist Position

As a master’s student in Aerospace Engineering at the University of Michigan Ann Arbor, I believe my academic and industry experiences align perfectly with the requirements of the Thermal System Engineer position at Hexagon Purus.

During my internship at Zoox Inc., I took charge of a stagnant coolant flow-mapping test rig for the L5 vehicle motor and battery cooling system. Within a span of just 9 weeks, I developed timelines, procured components, and led the project from an empty frame into actively outputting critical flow data for the team. This data includes pressure drops across each thermal component and flowrate through different flow branches with respect to different valve positions and pump duty cycle. I tested 175 different system configurations, extracting experimental data that led to design recommendations capable of potentially improving the system flow rate by 7.5%. From this experience, I became familiar with thermal testing procedures within the automotive industry, and have become adept at operating various pressure sensors, flowmeters, and DAQ software (IPEMotion). In addition, I innovated by devising an automation script in VBS (Visual Basic Script) which automatically changes pump duty cycle and valve positions as a function of time, slashing testing duration for my team from the initial 6 hours down to just 30 minutes.

Furthermore, my time at Volvo Group Truck Technology saw me utilizing Star CCM+ and RANS turbulence model to conceptualize a swirl expansion tank. This tank was not only optimized to attain a 99% separation efficiency but also achieved a substantial 40% reduction in mass from its original conception. I also simulated water-injection within air-intake using PowerFLOW, ensuring that the water separation satisfies the requirement outlined by SAE J554. It also provided me with insights into advanced LES turbulence model and the Lattice-Boltzmann method.

Drawing from my extensive academic background in Aerospace Engineering and hands-on industry experience at leading organizations such as Zoox Inc. and Volvo Group Truck Technology, I am well-positioned to contribute effectively to Hexagon Purus' mission as a Vehicle Thermal Systems Engineer. My hands-on experience with coolant flow-mapping, proficiency with DAQ software, familiarity with advanced thermal testing procedures, and achievements in simulation and optimization make me a strong match for this role. I am eager to bring my innovative approach, technical expertise, and dedication to Hexagon Purus and collaborate with the team to drive impactful advancements in vehicle thermal systems. I am looking forward to the opportunity to further discuss how I can contribute to your esteemed organization.