Bilal Mohammed Sajjad Siddiqui

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SUMMARY

Data-driven simulation engineer with expertise in CFD, aerodynamic correlation, and vehicle thermal modelling. Skilled in linking simulation to physical data using Python-based validation tools. Experienced in cross-functional collaboration with design, test, and track teams to translate analysis into measurable performance gains.

SKILLS

Python | MATLAB | AI/ML for Simulation Automation | STAR-CCM+ | Fluent | Siemens NX | CATIA V5 | ANSA | META | TAITherm

EXPERIENCE

Master Thesis Student, *Volvo Cars* Jan 2025 – Sep 2025 | Göteborg, Sweden
- Built a **1D-3D** simulation model to predict the temperatures across the rear lamp of the Volvo EX90, helping reduce performance and aesthetic defects due to sun load, along with reducing testing time and cost. Modified to a scalable framework adaptable to multiple vehicle components and models, enabling cross-project reuse and accelerating analysis for diverse designs.
- **Cut reporting time by 40%** by writing Python scripts to compare simulation and sensor data, simulation runtime trends, and highlight relative-error margins across multiple studies.

Battery Summer Intern, *Volvo Cars* Jun 2024 – Aug 2024 | Göteborg, Sweden
- **Enhanced efficiency by 35%** by reducing pressure drop through iterative cooling plate design changes using ANSYS Discovery.
- Benchmarked battery packs from competitor vehicles across key metrics, including NVH study and thermal management, conducting detailed teardown analyses to identify design strengths and innovation opportunities.
- Accelerated cross-team design iterations **by more than 50 %** by completing advanced **Teamcenter PLM and CATIA V5 training**, streamlining CAD data management and cutting design-change turnaround time in collaborative projects.

ERP Business Analyst, *Schneider Electric* Oct 2022 – Aug 2023 | Bangalore, India
- Delivered **USD 12,000+ in cost savings** by implementing the Mobile Supply Chain Application, driving alignment and efficiency across cross-functional teams, acting as the single point of contact.
- Established **100% end-to-end product traceability** at the BEF plant in Bangalore by designing and deploying the Pallet Tracking System, enabling real-time product monitoring from the shop floor to the customer.
- **Reduced month-end system downtime by 65%** by developing remediation scripts with the help of root cause analysis for recurring Supply Chain and Warehousing issues, preventing disruptions and boosting efficiency.

Graduate Engineer Trainee, *Schneider Electric* Aug 2021 – Oct 2022 | Bangalore, India
- Eliminated frequent system and process errors by proactive resolution and monitoring alerts, **cutting monthly support tickets by 10%**, and ensuring smoother operations.
- Developed strong leadership and interpersonal skills by **driving automation and innovation initiatives** in a team of 40+ colleagues.
- Validated system reliability during platform upgrade by **testing 100+ programs** and helping fix subsequent issues, ensuring seamless operation and minimising post-upgrade issues.

PROJECTS

Conceptual Design and Analysis of a Business Jet Using Hydrogen Fuel, Sep 2024 – Oct 2024
Project in Aircraft Design
- Designed a **business jet from scratch** to meet 14 performance and capacity requirements, developing a complete blueprint with aerodynamic design and optimisation, structural integrity and flight efficiency.

Formula Student, *Chalmers University of Technology* Sep 2023 – Sep 2024
- Engineered a **rear diffuser that increased downforce by 18% and reduced drag by 8%**, validating results through CFD and wind tunnel correlation.
- Executed high-fidelity aeromap simulations for pitch, yaw and cornering, driving targeted refinements resulting in a **12% increase in aerodynamic performance**.
- Produced precision components by designing and manufacturing molds in-house, as **e-milling co-responsible**, ensuring on-time and superior quality parts.

Inviscid Flow Through The Engine Intake of an SR-71 Blackbird, Feb 2024 – Mar 2024
Project in Compressible Flow
- Modelled SR-71 supersonic engine intake flow with StarCCM+, using analytical methods to determine boundary condition values, optimising inlet parameters to enhance performance and prevent unstart.
- Optimised the design for supersonic flow stability through simulation, with the results in accordance with the developed solutions on the actual aircraft.

AIAA DBF 2020, *Team Aeolus, PES University* Aug 2019 – May 2021
- Engineered aircraft design and dimensioning, optimising critical flight parameters, including take-off performance, turn radius, and lift-to-drag efficiency, also led the thermal/aero analysis. Fabricated the fixed-wing aircraft entirely in-house.
- **Secured 2nd place globally** in the design proposal stage at the AIAA DBF 2020 competition by presenting a high-impact, technically rigorous design solution that met stringent evaluation criteria.

EDUCATION

Master of Science in Applied Mechanics, Aug 2023 – Sep 2025 | Göteborg, Sweden
Chalmers University of Technology | GPA 4.5/5.0

Bachelor of Technology in Mechanical Engineering, Aug 2017 – May 2021 | Bangalore, India
PES University | GPA 8.3/10
- Specialisation in Thermo-Fluids Engineering.

REFERENCES

Available upon request.