Nabil Tarabay

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Summary

- Proficient in mechanical principles: statics, dynamics, thermodynamics, material science, control systems, and manufacturing process.
- Concrete skills in design and implementation of mechanical systems.
- Proficient in computer modeling and simulation: CATIA V5, SolidWorks, Simlab CFD, NASTRAN, etc.
- Practical knowledge in electronics, particularly in automation applications and thermal management for batteries.
- Hands-on experience in programming and data analysis for various projects, including database communication and numerical methods like finite differences.
- Demonstrated ability to work effectively in teams, manage projects, and collaborate with clients for optimal technical solutions.

Education

Bachelor of Mechanical Engineering.   **(2024)**

Polytechnique Montréal

Technical Project

Design, Modeling, and Implementation of an Autonomous Electric Aircraft   **(2021)**

- Conduct the design and 3D modeling of the aircraft using CAD software
- Ensure the aircraft's autonomy using an Arduino circuit
- Print, cut, and industrialize the necessary parts to create a functional prototype
- Produced design reports, test reports, and results reports.

Professional Experience

Project Management Intern - Electromechanical Building Systems (CSSDM)   **(2023)**

- Supported project managers in tasks such as drafting service offer requests, issuing purchase orders, and tracking invoices and schedules.
- Wrote site visit and schedule analysis reports.
- Assisted technicians with various tasks (plan verification and project closure).
- Analyzed project data to drive process improvements.

Modeling and Optimization of a Thermal Management System for High Charge/Discharge Rate Batteries (Technologies Célestia) **(2023-2024)**

- Conducted comparative analysis of CFD analysis and topological optimization software. Performed electrical and thermal modeling to analyze and manage system heat.
- Designed and simulated a submerged cooling system with dielectric fluid for high-rate battery thermal management.
- Worked closely with the client for cooling section integration and testing using additive manufacturing.
- Established a test bench for concept validation and correlated simulation results with real-world behavior.
- Participated in the cooling system's fabrication and demonstration in collaboration with the client.

Intern in Production Line Optimization and Assembly Processes (Pharmascience) **(2024)**

- Implement technical solutions to optimize blister and bottle packaging processes, aiming to improve quality and productivity while adhering to change controls, execution timelines, and cost constraints
- Conduct production tests to ensure the compatibility of new solutions with existing processes and equipment
- Recommend technical adjustments based on monitoring and analysis of packaging machine performance, identifying trends and anomalies
- Develop and update practical guides and support documents to address packaging issues

Intern in Engine Maintenance and Improvement (Pratt & Whitney Canada) **(2024)**

- Disassemble and analyze problematic PT6 engines to perform a detailed diagnosis of faulty components and systems
- Carry out necessary repairs and adjustments to resolve identified issues or optimize engine performance
- Propose technical improvements for engines based on observations and collected data to enhance their performance and durability in future iterations
- Collaborate with a team of engineers and technicians to integrate improvement suggestions into future iterations of PT6 engines
- Optimize workshop operational processes by reviewing procedures and implementing solutions to improve efficiency and reduce engine processing times

Technical Skills

- CATIA/Solidworks
- EES
- Suite MS Office
- LabVIEW

- Autodesk CFD
- Python/Matlab
- MySQL/PHP
- Automgen

- Simlab CFD
- CES Edu Pack
- VBA (Macros)
- NASTRAN

- Autocad
- Inspire Cast
- HTML/CSS
- Arduino IDE