Abdallah Benelmadjat

PROJECTS PORTFOLIO

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Engineer skilled in design, programming, and automation. Dedicated to interdisciplinary projects, utilizing advanced tech to tackle complex engineering issues, promoting innovation, and enhancing efficiency in solutions across various industries.

MECHANICAL FOCUSED PROJECTS

Club Project: Part of the design team to build a rocket that attained 1000m for a national competition Sep - Dec 2020

- Collaborated with team to design a high-performance rocket using SolidWorks and Ansys for simulations.
- Achieved 2nd place in a national competition, reaching an impressive altitude of 1000m with our rocket.
- Developed a comprehensive project timeline, coordinating tasks among team members to meet deadlines with Trello.

Troubleshot and restored two conventional milling machines at USTHB's Mechanical Engineering Workshop Nov 2020

- Diagnosed malfunctions and restored functionality of two milling machines in an academic workshop.
- Ensured optimal performance by replacing worn components and conducting preventive maintenance.
- Enhanced workshop capabilities, benefiting students and faculty in their hands-on learning experiences.

Bachelor's Thesis Project: Reconstructing a 4-cylinder engine into SolidWorks and running heat simulations May 2019

- Accurately reconstructed a 4-cylinder engine in SolidWorks using precise measurements and blueprints.
- Developed advanced SolidWorks skills and proficiency in heat simulation tools for engine analysis.
- Conducted thermal simulations to analyze heat distribution and identify potential performance improvements.

AUTOMATION FOCUSED PROJECTS

Club Project: Designing and constructing an Arduino-Based 3D Printing for the Mechanical Engineering Club Feb 2021

- Provided hands-on training for club members to facilitate the use of the Arduino-based 3D printer.
- Utilized open-source slicing software for converting 3D models into printer-ready G-code instructions.
- Conducted extensive testing and calibration to ensure the 3D printer's quality and reliability.

Assisted professor with building a small-scale Industrial Control Panel to control a small electric motor Nov 2019

- Contributed to enhanced student learning by helping provide tangible example of automation in a classroom setting.
- Demonstrated practical applications of control panel technology in adjusting various parameters of motor operation.
- Gained insight into the planning, execution, and troubleshooting of automation projects in an educational context.

PROGRAMMING FOCUSED PROJECTS

Course Project: Game theory, big-data combination and machine learning for wind power forecasting simulation April 2023

- Addressing energy interconnection obstacles by combining sophisticated analytical techniques for efficiency.
- Examining game theory's impact on coordinating intricate energy systems for optimal performance.
- Assessing machine learning's capacity to accurately predict renewable power generation outcomes.

Master's Thesis Project: Classification of Gear Defects using Neural Networks with Deep learning July 2021

- Collaborated with Dr. Adel Afia on an interdisciplinary project, merging AI & engineering domains for optimal results.
- Acquired and refined vibration signal data for training and evaluating a robust deep learning model effectively.
- Attained enhanced gear defect identification by surpassing the performance of traditional classification methods.

CELEC Hackathon Competition: Virtual medical assistant website coding using Machine Learning Classification Mar 2021

- Secured 3rd place in the competition, earning a free Android app coding training.
- Utilized machine learning classification to accurately predict diseases based on symptoms.
- Focused on backend development using Django framework and Python programming language.

ENERGY FOCUSED PROJECTS

Course Project: Assisted a startup company Square Solar Inc. to improve modular solar panel Nov 2023

- Analyzed the existing product, highlighting areas for improvement, proposing solutions to address identified issues.
- Conducted quantitative analysis to calculate potential cost savings and projected impact on carbon reduction.
- Received praise from both our professor and the of the company for the quality of our work and the practicality of our recommendations.

LEGAL AND REGULATORY FOCUSED PROJECTS

Course Project: Analysis of Legal, Permitting Challenges and Risks for SunZia SouthWest Transmission Project Dec 2022

- Conducted in-depth analysis of legal considerations surrounding the construction of transmission lines.
- Identified and assessed various challenges encountered in the project's legal landscape.
- Explored regulatory permitting requirements and relevant acts impacting project development.