

# 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

**Meca Club: 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.

**Troubleshoot 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

**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

**Game theory and big data combination with machine learning for a wind power forecasting simulation** Ongoing

- 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.