Ahmed Boughdiri

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PhD student in causal inference

Education

ENS Paris-Saclay   **2021 − 2022**

MSc Computer vision and machine learning (MVA)   *Paris, France*

- Main courses: Reinformation learning, Probabilistic graphical models, Convex Optimization, Object Recognition

PONTS ParisTech   **2018 − 2022**

MSc in Computer Science and Mathematics Engineering   *Paris, France*

- Main courses: Stochastic calculus, Operations research, Machine Learning, Game theory, Optimal control theory

Lycée Pierre de Fermat   **2016-2018**

Preparatory Program for entry to French Grandes Écoles d'Ingénieurs   *Toulouse, France*

- Intensive preparation in mathematics, physics and computer science for highly selective nationwide exams.

Experience

INRIA, PreMeDICaL   **April 2023 − September 2023**

Research Engineer   *Montpellier, France*

- Working under the supervision of Julie Josse and Erwan Scornet on Causal inference.

EPFL, LCAV   **April 2022 − October 2022**

Research Intern   *Lausanne, Switzerland*

- Worked under the supervision of Julien Fageot on statistical analysis of sparse inverse problem algorithm.
- Adapted and re-wrote a paper on sparse inverse problem to the periodic case.

ENS ULM & CNRS   **April 2021 − July 2021**

Research Intern   *Paris, France*

- Worked on biology applications of machine learning under the supervision of Guillaume Dugué and Pierre Latouche.
- Built an acquisition setup and calibrated multiple cameras in order to reconstruct a 3D model of rats.
- Trained a neural network to track the behaviors of the rats using multiple camera views with DeepLabCut.

Air France & CERMICS   **January 2021 − April 2021**

Research Intern   *Paris, France*

- Worked under the supervision of Axel Parmentier on the prediction of the delays of airplanes using a stochastic model.
- Applied a Lagrangian relaxation on the pricing sub-problem to derivate a lower bound of the minimization problem.
- Implemented a sub-gradient method to minimize delay costs based on the previous stochastic model.

Cor-e   **September 2020 − December 2020**

Data scientist Intern   *Toulon, France*

- Reverse-engineered an electricity supply and demand algorithm (Euphemia) which optimizes the use of power lines between European countries
- Implemented this algorithm with a delta method in order to predict the electricity market prices

Projects

Operations Research Project | *Python, Julia, Gurobi*   **October 2019**

- Finalist in an operations research contest co-organized by Renault and École des Ponts.
- Implemented an algorithm that dictates when and where to deliver materials to the Renault factories in order to optimize time, CO_2 emissions and costs.
- The solution we developed was 40% more efficient than the standard solution by Renault.

Self Driving Vehicle | *Python, Tensorflow, C++*   **November 2018 − March 2020**

- In a group of three supervised by Fawzi Nashashibi, we designed and programmed a semi-autonomous driving vehicle for disabled people capable of moving freely in public areas or museums.
- Implemented a SLAM algorithm in order to localize the vehicle in closed and known environments.
- Trained a CNN to detect and recognise objects near the car to ensure a safer drive.