

Mathieu Nalpon

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EDUCATION

- **CentraleSupélec - Paris Saclay University** Paris, France
Master's degree in Mathematics and Data Science Sept. 2019 – Oct. 2022
- **Cachan University** Paris, France
Bachelor of Engineering Sept. 2016 – July. 2019

EXPERIENCE

- **Weborama** Paris, France
Machine Learning Engineer Oct. 2023 -
 - **WebMind - Url recommendation:** Contextual targeting tool generating lists of relevant URLs to optimize the creation of advertising campaigns.
 - * Crawling of web pages and extraction of their content for embedding.
 - * Use of Faiss for similarity search.
 - * Creation of an insight tool to prioritize and visualize URL topics.
 - * API deployment of the service.
 - **Deployment of an LLM for URL annotation:** Deploy and benchmark LLMs for URL annotation
 - * Utilize the Ray framework to deploy multiple LLMs.
 - * Optimize resources and scale deployment.
 - * Create a benchmark for annotating URLs.
- **ArianeGroup Defense & Space** Paris, France
Data Scientist Oct. 2020 - Oct. 2022
 - **Autonomous Neutralization of a Launcher in Flight:** Worked on a state-of-the-art solution for the autonomous neutralization of a launcher in flight.
 - * Selection of the algorithm and simulation of real-world cases with noise.
 - **Refinement of Time Before Neutralization of a Launcher in Flight:** The in-flight neutralization of a rocket results in falling debris. I was responsible for designing and coding an algorithm that calculates debris dispersion to refine the neutralization timing.
 - * Utilized statistical methods to obtain the continuous probability density of rocket debris.
 - * Applied geometric algorithms to find the convex hull enclosing the debris.
 - * Integrated clustering methods in the case of multimodal density to identify high-intensity zones.
 - **Trajectory Prediction and Lifetime of a Launcher:** During a flight test, a launcher may experience failures leading to a trajectory deviation, making it dangerous and requiring neutralization. To anticipate this risk, I developed a script to calculate the time before a launcher needs to be neutralized.
 - * Coded the launcher's dynamics to predict its trajectory.
 - * Added a calculation considering trajectory perturbation/deviation.
 - * Optimized the code to reduce time complexity.

PROJECTS

- **Personal Project - Fine-tuning Segment Anything (Meta):** Fine-tuning the Segment Anything model (Meta) with a LoRA to segment rings.

TECHNICAL SKILLS

- **Languages:** Python, C++, Bash
- **Libraries:** PyTorch, Optuna
- **Frameworks & Tools:** Git, Docker, Kubernetes, Ray, Snowflake, MLFlow, ElasticSearch, FAISS