Paul Mortamet, Applied Mathematics student

Paris, France | paul.mortamet@polytechnique.edu

PROFILE

Born in Mexico, I grew up in the French countryside (Gers) before successfully entering Ecole Polytechnique in 2019. I am now a 3rd Year student specializing in **Applied Mathematics and Computer Science**. This strong scientific basis brought me to move toward **Artificial Intelligence** by learning its **cognitive** inspirations, optimizing with **Mathematics** and creating with **Machine Learning**.

EXPERIENCE

Sept. 2021 - Dec. 2021

Research Project, LIMSI, *Paris (France)*   *supervized by François Yvon*

After going through numerous papers, I created my own solution for the word alignment problem called **Optimal Transport for Cross-lingual Word Alignments.**

- Optimal Transport
- FastText
- Wasserstein GAN & EMDOT
- Cross-lingual natural language processing

Jun. 2021 - Aug. 2021

AI Research Intern, Fujitsu, *Tokyo (Japan)*

<u>Internship subject to NDA, few informations available.</u> Developed numerous models, losses and metrics with great results. During this incredibly rich experience I worked on **state of the art research** at the **crossroads of Computer Vision and NLP** on a subject close to **Vid2Text**:

- Optical-Flow
- Encoder-Decoder
- Attention methods
- Pose estimation
- Temporal Convolutional Networks
- Transformers

Sept. 2020 - Jun. 2021

Research Project, MBDA, *France*

Designing a surveillance system against drone attacks based on drone networks. This experience taught me to **think out of the box by finding new solutions : I applied research on wolves behavior** to the project.

- 5000+ lines of codes in Java, C++, Python
- A*, RRT*, Genetic Algorithms

EDUCATION

Sept. 2019 - Aug. 2022

Ecole Polytechnique, *Paris (France)*

Top 1 scientific university in France and one of the best in Europe. Specializing in Applied Mathematics and Computer Science.

Sept. 2017 - Jul. 2019

Lycée Pierre de Fermat, *Toulouse (France)*

Top 10 French "classes preparatoires" two years of intense scientific classes (around 17 hours of work a day). Participated to the **International Chemistry Olympiad (IChO)** preparation for the French team.

INTERESTS & SKILLS

Fields	**Mathematics**	**Computer Science**	**Cognitive science**	**Philosophy**
Examples of skills	• Scochastic calculus • Optimization • Algebra • Markov chains • Probability	• Algorithmic • Data analysis • Machine Learning	• Perception • Language processing • Brain imaging • Computational models	• Freud • Hayek • Plato • Jankelevitch • Tocqueville
Examples of interests	Solving Optimization problems under Orthogonal constraints in C++		Comparing word embedding and computer vision models to MRI data during visual word recognition	

Kaggle competitions
Google Brain : Ventilator pressure prediction

BNP Paribas Data Challenge
Generative Modelling for Financial Losses