

Grégoire PETIT, PhD candidate (estimate graduation on December 5), AI Research Engineer

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Highly motivated *PhD* candidate in *Artificial Intelligence* at Ecole Nationale des Ponts et Chaussées, specializing in *Machine Learning* and *Continual Learning*, set to **graduate by the end of 2023**. Dual Master's degree of IMT Atlantique (France) and Georgia Tech (USA), with a deep focus on *Machine Learning applications*.

Available for *AI Research Engineer* job from January 2024.

Education

PhD in Computer Science, Continual Learning applied to Computer Vision

2020-2023, France

École des Ponts ParisTech, IMAGINE lab

AI / Machine Learning / Deep Learning / Dynamic Data > VISUM summer school.

Exemplar-Free Class-Incremental Learning > Publication record at top ML venues.

Master of Science in Computer Science (specialization Machine Learning). GPA: 4.0/4.0

2019-2020, USA

Georgia Institute of Technology

Master of Science in Computer Science, specialization Machine Learning.

Master's Project option, inner tree log density prediction from tree bark visual observation.

Inducted in the Honor Society.

Master of Engineering in Information Technology, Télécom Bretagne. GPA: 3.53/4.0

2017-2019, France

IMT Atlantique

General Engineering Program (Télécom Bretagne degree), in IT.

Admission through the national competitive examination for admission to the French "Grandes Écoles".

Academic research

My PhD thesis focuses on *Exemplar-Free Class-Incremental Learning* (EFCIL) and introduces innovative *algorithms* that address the problem of *catastrophic forgetting*. These advances help to achieve a better balance between *stability* and *plasticity* in *machine learning systems*, thus significantly improving their ability to *learn and adapt in dynamic environments*.

An Analysis of Initial Training Strategies for Exemplar-Free Class-Incremental Learning

2024

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), accepted → forthcoming

Petit Grégoire, Soumm Michael, Feillet Eva, Popescu Adrian, Picard David, Hudelot Céline and Delezoide Bertrand

Study that investigates the impact of initial training strategies and other factors on the performance of EFCIL.

PlaStIL: Plastic and Stable Memory-Free Class-Incremental Learning

2023

Second Conference on Lifelong Learning Agents (CoLLAs), in proceedings

Petit Grégoire, Popescu Adrian, Belouadah Eden, Picard David and Delezoide Bertrand

PlaStIL combines a fixed feature extractor and small model tops to improve the stability-plasticity balance.

FeTrIL: Feature Translation for Exemplar-Free Class-Incremental Learning

2023

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), in proceedings

Petit Grégoire, Popescu Adrian, Schindler Hugo, Picard David and Delezoide Bertrand

FeTrIL combines a fixed feature extractor and a pseudo-features generator to improve the stability-plasticity balance.

AdvisIL: A Class-Incremental Learning Advisor, in proceedings






2023

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), in proceedings

Feillet Eva, **Petit Grégoire**, Popescu Adrian, Reyboz Marina and Hudelot Céline

AdvisIL recommends an adapted pair based on user-provided incremental process characteristics.

Skills

| | | | | | |
|--|--------------------------|----------------------|---------|--------------|--------|
|  | Professional Proficiency | Languages & Systems: | Python | MySQL | C++ |
|  | Native Speaker | | LaTeX | Bash | MATLAB |
|  | Conversational level | | SLURM | git | |
|  | Basic level | Frameworks: | PyTorch | TensorFlow | NumPy |
|  | Basic level | | pandas | scikit-learn | JAX |

Soft skills: Leadership, Management, Autonomy, Dedication

Music: Saxophone (since 2007), Guitar (4 years), Piano (2 years), Computer Music (1 year in class, 4 years self-taught).

Experience

3-year PhD contract at CEA Tech

2020-2023

AI / Machine Learning / Deep Learning / Dynamic Data > AI4media Colloquium

Supervision of a graduate end-of-course project student for 6 months > graduation final requirement.

Successfully commercialized advanced AI research outputs to a leading global semiconductor company, enhancing their technological capabilities and operational efficiency.

Teaching Assistant at PARISTECH

2021-2023

Machine Learning for Master of Engineering students > 36h of practical sessions.

Deep Learning for Master of Engineering students > 36h of practical sessions and semester project evaluation.

Advanced Machine Learning for Specialised Master Big Data and Artificial Intelligence students > 42h of practical session and final exam evaluation.

6-month AI engineer internship at Air France

2020

AI / Machine Learning / Computer vision around voice and face analysis issues. > Presented AI-driven solutions and research outcomes to the Security Directors of Air France, providing potential advancements in AI-based security.

Academic projects

Double reed bassoon with 3D printing technologies at Conservatoire de Brest

2019

4-month group project. Development and prototyping. Project management manager in a multicultural team of 5 people. Research Award (delivered by the university).

Dental healthcare with 3D printing methods at TeamSoc21

2019

4-month group project. Creation of a startup in a European context. Team of 3 European people.

Creation of an application at Brittany Ferries

2018

4-month group project. Creation of an application to give information to ferry passengers about cultural sites. Responsible for the business model, the communication, and the ethical aspect of our product. In a multicultural team of 8 people.

Renovation of two broken 3D printers at IMT Atlantique - Development project

2018

4-month group project. Hardware and software. Creation of an autocalibration method.

Creation of a vegetable garden at IMT Atlantique - Sustainable development project

2018

4-month group project. Creation of a vegetable garden on the Brest campus. "Action of the Year" award, IMT Atlantique, Brest campus (delivered by the university).

Creation of a robot at IMT Atlantique - Robotics project

2017

2-month group project. Creation of a robot, driven with an Android application by Bluetooth, which communicates with the environment by RFID. Equipment set-up and IT development, in a team of 9 people. Manager of hardware-software coordination.

Services

Sound designer & Music composer at Independant game - WOLF

2022-current

Designing the sounds and composing music using Ableton for an independent game designed in a team of 3 people.

Hiking organizer at Hiking club

2021-2023

Organization of hikes in the Paris region, according to level, desires, and type of terrain.

Co-founder, CTO at iCare

2021

Led the development of a platform designed to streamline investments in corporate social responsibility initiatives.

Board Member, TVonIP Project Manager at ResEI

2017-2019

Participated in maintaining the campus-wide internet service provider (ResEI), which served over 800 subscribers and offered a range of services, including TV on IP, FTP indexer, mailing lists, and website management among others.

Vice-President at Music Club, Brest Campus

2017-2019

Managed funding and coordinated musical events, in addition to liaising with other artistic clubs on campus.

President at Marching Band, Brest Campus

2017-2019

Revived the marching band after a year-long hiatus by formalizing the structure, securing funds, repairing instruments, and providing saxophone lessons.