

Yannis Flet-Berliac

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Summary

As a Research Scientist at InstaDeep, my role involves building **multi- and mono-modal LLMs** for **Biotech** applications and researching **LLM architectures for Reinforcement Learning**. In my prior position, I worked as a postdoc in Emma Brunskill's lab at Stanford University, where I led projects related to **Offline deep RL** in **Robotics, Healthcare, and Education**, collaborating with peers from the [Stanford AI Lab](#). I have a PhD in Computer Science with a focus on **Online deep RL** from [Inria](#), and I also hold dual MSc degrees in Engineering and ML from [École Centrale](#) and [DTU](#). During my two-year stay in Denmark, I contributed to the development and deployment of ML models in three different startups, spanning **NLP, Computer Vision, and Speech Processing**. Additionally, I gained experience as an ML Engineer (**NLP**) at [iAdvize](#), working on conversational systems. I had the honor of serving as an Associate Chair at the 40th [ICML conference](#) held in Hawaii.

PhD

Title **Sample Efficient Deep Reinforcement Learning for Control, Exploration and Safety**, [Manuscript](#).

Supervisor: Philippe Preux (director of the lab). [Affiliations](#): Inria (SequeL team), Université de Lille, CNRS.

2018 – 2021 My research project explored how to enable computers to efficiently gain autonomy in continuous control environments and tasks where efficient exploration is a bottleneck. My work particularly focused on online learning, involving building new neural network architectures and extending RL methods to develop new training algorithms.

Jury Ann Nowé, Bruno Scherrer, Luce Brotcorne, Anders Jonsson, Joëlle Pineau, Adam White, *Defended on 10/06/2021*.

Co-Advisor Raphaël Avalos (Intern), Antoine Moulin (Intern), Johan S. Obando-Ceron (Research Collaboration).

Selected Publications

2023 A. Badrinath, **Y. Flet-Berliac**, A. Nie, E. Brunskill, *Waypoint Transformer: Reinforcement Learning via Supervised Learning with Intermediate Targets*, 37th Conference on Neural Information Processing Systems ([NeurIPS](#)).

R Boige, **Y. Flet-Berliac**, A Flajolet, G Richard, T Pierrot, *PASTA: Pretrained Action-State Transformer Agents*, Foundation Models for Decision Making Workshop, 37th Conference on Neural Information Processing Systems ([NeurIPS](#)).

A. Nie, Y. Chandak, C. Yuan, A. Badrinath, **Y. Flet-Berliac**, E. Brunskill, *OPERA: Offline Policy Evaluation with Re-weighted Aggregates of Multiple Estimators*, Under review.

M. Jörke, W. Neiswanger, A. Nie, J. Lee, **Y. Flet-Berliac**, E. Brunskill, *A Policy Gradient Algorithm for Bayesian Optimal Experimental Design with Contextual Bandits*, Under review.

2022 K. Dong, **Y. Flet-Berliac**, A. Nie, E. Brunskill, *Model-based Offline Reinforcement Learning with Local Misspecification*, 37th AAAI Conference on Artificial Intelligence ([AAAI](#)).

A. Nie, **Y. Flet-Berliac**, D. Richmond, W. Steenbergen, E. Brunskill, *Data-Efficient Pipeline for Offline Reinforcement Learning with Limited Data*, 36th Conference on Neural Information Processing Systems ([NeurIPS](#)).

Y. Liu, **Y. Flet-Berliac**, E. Brunskill, *Offline Policy Optimization with Eligible Actions*, Conference on Uncertainty in Artificial Intelligence ([UAI](#)).

Y. Flet-Berliac, D. Basu, *SAAC: Safe Reinforcement Learning as an Adversarial Game of Actor-Critics*, Conference on Reinforcement Learning and Decision Making ([RLDM](#)).

2021 **Y. Flet-Berliac**, J. Ferret, P. Preux, O. Pietquin, M. Geist, *Adversarially Guided Actor-Critic*, International Conference on Learning Representations ([ICLR](#)).

Y. Flet-Berliac, R. Ouhamma, O.-A. Maillard, P. Preux, *Learning Value Functions in Deep Policy Gradients using Residual Variance*, International Conference on Learning Representations ([ICLR](#)).

2019 **Y. Flet-Berliac**, P. Preux, *MERL: Multi-Head Reinforcement Learning*, Deep Reinforcement Learning Workshop, 33rd Conference on Neural Information Processing Systems ([NeurIPS](#)).

Y. Flet-Berliac, *The Promise of Hierarchical Reinforcement Learning*, The Gradient - Stanford AI Lab.

Professional Experience

Nov17–Oct18 **Machine Learning Engineer (NLP)**, IADVIZE

- o iAdvize is the European leader in conversational marketing.
- o I joined the ML team (NLP) at its creation, so I was involved in designing and executing product-focused research agendas, which led to building conversational models for human/machine interface using deep learning.
- o Part of my role also consisted of democratizing ML both internally (mainly with the developers) and externally (mainly with the clients): "Machine learning & language complexity: why chatbots can't talk... yet", [Article](#).

- Aug17–Nov17 **Research Assistant (Computer Vision)**, DTU
 Research work at DTU Compute laboratory building deep convolutional neural network models for image classification and generative adversarial network models for image generation from a mixture of human artworks and photographs.
- Mar17–Aug17 **Machine Learning Researcher (Computer Vision)**, SOPLY (part-time during DTU MSc)
 Responsible for defining with the co-founders a roadmap for ML projects in the company. I worked on: (1) a system to recommend artists according to their photographic style and (2) three image classification models (content, style & type) for artworks in collaboration with the National Gallery of Denmark.
- Nov15–Jan17 **Machine Learning Engineer (NLP)**, EASYTRANSLATE (part-time during DTU MSc)
 Several research projects in collaboration with the product team: (1) a seq2seq machine translation model for specialized text and (2) a recommendation system for human translators using LDA models trained on Wikipedia, deployed on AWS.

Education

- 2015–2017 **MSc in Digital Media Engineering (Double Degree in Computer Science)**, DTU, Copenhagen, Denmark
 Machine Learning, Deep Learning, High Performance Computing, Cognitive Science, Graph Theory, Biometric Systems.
 Thesis: "Entity Neural Networks for Natural Language Understanding", [Manuscript](#), 12/12.
- 2013–2017 **MSc in General Engineering (Diplôme d'Ingénieur)**, École Centrale, Nantes, France
 Statistics, Project Management, Information Systems, Product Design and Development, Programming and Algorithms.
 Top 5 French Engineering School.

Collaborations in additional Research Projects

- 2021-2022 **rlberry - A Reinforcement Learning Library for Research and Education**, Software. [GitHub Repository](#).
 O. Darwiche Domingues, Y. Flet-Berliac, E. Leurent, P. Ménard, X. Shang, M. Valko.
- 2019 **Princess of Parallelograms (GANs, Face Generation)**, *Le Fresnoy National Studio of Contemporary Arts*.
 ◦ Exhibited in [Panorama 21](#), selected for the [Open Forum Artworks and Research](#) exhibition and in several cultural venues.
- 2017 **End-to-end speech recognition system (RNNs, CTC loss function)**, *Corti AI & DTU*.
 ◦ Extract critical information about patient's condition calling 112 or 911. [Slides](#) and press coverage in [MIT Tech Review](#).
- 2015 **DeepReader: Extract Knowledge from Text using Unsupervised Learning (LDA)**, *EasyTranslate & DTU*.

Invited Talks

- Jul21 **"Efficient Actor-Critics under the Prism of Variance"**, *UC Berkeley Robot Learning Lab*. [Website](#).
- Feb21 **"Adversarially Guided Actor-Critic for procedurally-generated environments"**, *DeepMind*. [Slides](#).
- Oct20 **"Learning Value Functions using Residual Variance in Deep Policy Gradients"**, *DeepMind*. [Slides](#).
- Nov19 **"Do we control the algorithms we create?" (Oral+Panel Discussion)**, *Open Forum Art & Research*. [Program](#).
- Oct19 **"Deep Reinforcement Learning: Improving Policy Gradient Updates"**, *Inria Seminars (SequeL)*. [Website](#).
- Apr19 **"Deep Reinforcement Learning at Scale"**, *HPC - BigData Inria Project Lab*. [Website](#).
- Nov17 **"Question Answering and Deep Learning for Language Understanding"**, *ML Meetup Nantes*. [Video](#) (French).

Teaching, Summer School Organizing & Services

- 2023 **Associate Chair, International Conference on Machine Learning (ICML)**, Hawaii, USA. [Website](#).
- 2020-2023 **Reviewer Services**: NeurIPS, ICLR, IJCAI, JMLR, EWRL, AAAI RL Ready for Production Workshop.
- 2022 **Program Committee, European Workshop on Reinforcement Learning (EWRL)**, Milano, IT. [Website](#).
- 2019-2020 **Teaching Assistant, Reinforcement Learning course of MVA ENS Paris-Saclay**, Gif-sur-Yvette, FR.
 Instructors: Alessandro Lazaric & Matteo Pirootta.
- 2019 **Program Committee & Teaching Assistant, Reinforcement Learning Summer School (RLSS)**, Lille, FR.
 The [program](#) of the Inria-organized summer school & the [practical sessions](#) in which I served as TA and helped create.
- 2015 **President, Enactus Centrale Nantes**, Nantes, FR.
 Managing a social-entrepreneurship association composed of 90 students focusing on 6 active international projects.

Computer Skills

- ML JAX, TensorFlow, PyTorch, scikit-learn, Jupyter/Google Colab, Lua/Torch, Matlab.
- Lang | Op Python, Scala, Java, C, C++, R, PHP, Bash | Docker, Google Cloud Platform, Amazon EC2/S3.
- Workflow | OS \LaTeX , Git, Vim, CircleCI | macOS, Linux, Windows.

Misc.

- Certifications "Functional Programming Principles in Scala" (EPFL), "Structuring Machine Learning Projects" (Coursera).
- Award 1st Price, Venture Cup Challenge 2016, DTU.
- Sports Marathon, Biathlon, Taekwondo, Squash, Tennis, Surf, Windsurf.
- Music | Movie Piano (16 years), violin (3 years). Producing electronic music and short movies with little equipment and a drone.