Arthur Douillard

Deep Learning Research Scientist

Paris, France

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Education

PhD in Computer Science — *Paris, France*

Sorbonne University (LIP6) *Advisor: Pr. Matthieu Cord* — *Jul 2019 - Now*

- In-going PhD thesis on Continual Learning for Computer Vision.

M.S. in Computer Science (*Diplôme d'ingénieur*) Major GPA: 3.7 / 4.0 — *Paris, France*

EPITA *Advisor: Pr. Reda Dehak* — *2014 - 2018*

- Machine Learning, Deep Learning, NLP, Python, C++, Golang, Scala/Kafka/Spark, Image processing, Text Mining
- Stats & Proba, Linear Algebra, Convex Optimization, Logic

Publications

PLOP: Learning without Forgetting for Continual Semantic Segmentation — *CVPR*

Arthur Douillard, Yifu Chen, Arnaud Dapogny, Matthieu Cord — *2021*

Continuum: Simple Management of Complex Continual Learning Scenarios — *arXiv preprint*

Arthur Douillard, Timothée Lesort — *2021*

PODNet: Pooled Outputs Distillation for Small-Tasks Incremental Learning — *ECCV*

Arthur Douillard, Matthieu Cord, Charles Ollion, Thomas Robert, Eduardo Valle — *2020*

Insights from the Future for Continual Learning — *arXiv preprint*

Arthur Douillard, Eduardo Valle, Charles Ollion, Thomas Robert, Matthieu Cord — *2020*

Experience

Heuritech — *Paris, France*

Research Scientist *Advisor: Dr. Charles Ollion, Dr. Thomas Robert* — *July 2019 - Now*

- Improving SotA models in production and advising the R&D team.

Heuritech — *Paris, France*

Research Engineer *Advisor: Alexandre Ramé* — *Sept 2018 - June 2019*

- Developed novel attention mechanisms leading up to a new proposed vertical (logo detection in the wild).
- Speed up training time of DNNs by 10x and inference time by up to 5x.
- Implemented numerous research papers in production leading to better forecast our product.

Dataiku — *Paris, France*

Research Engineer Intern *Advisor: Dr. Léo Dreyfus-Schmidt* — *Feb - Aug 2018*

- Implemented deep learning models for computer vision (transfer learning, detection, training schedules, fewshot, autoML, etc.) that are still in production 2 years later.
- Won the 1st & 2nd prize of the NATO Innovation Challenge as the lead scientist of my team with satellite imagery project.
- Organized & presented internal conferences on deep learning.

ZebrIA — *Paris, France*

Graduate Student Researcher *Advisor: Dr. Guillaume Palacios* — *Aug 2017 - Jan 2018*

- Researched & Implemented Deep Learning NLP papers for a medical chatbot.

MyDrive Solutions — *London, United Kingdom*

Data Scientist Intern *Advisor: Dr. Zoulficar S. Younes* — *Sept 2016 - Jan 2017*

- Migrated the mapping database from Here Maps to OpenStreetMaps reducing cost by 6 figures £
- Analyzed and applied Machine Learning algorithms on driver and medical data in Python (Pandas, Scikit-Learn, Keras) and R for multiple clients across the world (England, Italy, France, Indonesia)

Teaching

EPITA — *Master level*

Deep Learning Lecturer for +60 students per year — *2019 - Now*

Sorbonne Université *Master level*

Deep Learning Teacher Assistant for +70 students per year *2019 - Now*

EPITA *Bachelor level*

Teacher Assistant *2016 - 2018*

- C/C++ Programming
- Unix, Shell, Algorithm theory
- Java Programming
- Database theory and SQL
- Web programming & Project Management
- Supervision of 30 other teacher assistants

Personal Projects

- **Continual Learning data loaders** for easy research reproducibility (link). Used by multiple research teams across the world and by the CVPR21 Continual competition organizers.
- Implementation of a dozen papers in Pytorch and Tensorflow cummulating to more than 300 ⋆ (link).
- **Blog** where I explain Deep Learning concepts (link) w/ 6k visitors per month
- Memory allocator on a **cluster of machines using MPI**.
- Minor contribution to **scikit-learn** fixing a bug in the RFECV algorithm.
- Efficient implementation of Damerau-Levenshtein distance with **Radix Trie** and mmap in C++.
- **Compiler front-end/back-end** for the language Tiger, coded in C++, YACC, Bison, and several flavors of ASM.

Skills

- **Programming Languages**: Python C/C++ Shell SQL Java Scala Golang Prolog Haskell R Latex
- **Data Science**: Pytorch Tensorflow / Keras Scikit-Learn Numpy Pandas
- **Tools & OS**: Linux MacOs Git Jupyter Vim VSCode
- **Languages**: French (native) English (TOEIC 965/990) Spanish Mandarin (Very beginner) Esperanto (notions)