Arthur **Douillard**

Coder, scientist, and teacher in Deep/Machine Learning

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
CVPR Workshop

ARTHUR DOUILLARD, TIMOTHÉE LESORT
2021

Insights from the Future for Continual Learning
CVPR Workshop

ARTHUR DOUILLARD, EDUARDO VALLE, CHARLES OLLION, THOMAS ROBERT, MATTHIEU CORD
2021

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

ARTHUR DOUILLARD, MATTHIEU CORD, CHARLES OLLION, THOMAS ROBERT, EDUARDO VALLE
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.

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* · DEEP LEARNING TEACHER ASSISTANT		*2018*

- Help Dr. Charles Ollion for CNN, Object Detection, and Segmentation

EPITA · *Bachelor level* · Computer Science Teacher Assistant   *2016 - 2018*
- C/C++ Programming, Unix, Shell, Algorithm theory, Java, SQL, Web Programming, Project Management
- Responsible of the course materials produced by 30 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 [LINK].
- 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)

Talks

ContinualAI, Continual Learning outside full supervision [VIDEO]   *Apr 2021*

ContinualAI, Continuum: Simple Management of Complex Continual Learning Scenarios [VIDEO]   *Apr 2021*

Dataiku, Continual Learning for Semantic Segmentation   *Jan 2021*

Extrality, Continual Learning for Semantic Segmentation   *Nov 2020*

ECCV, PODNet: Small-Tasks Incremental Learning [VIDEO]   *Aug 2020*

ContinualAI, PODNet: Small-Tasks Incremental Learning [VIDEO]   *May 2020*

Sorbonne, Incremental Learning   *Jun 2019*

Dataiku, Lowshot Learning   *Aug 2018*

NATO, NATO Innovation Challenge (in front of the supreme commander and a small dozen of generals
                                                                                                      May 2018
across the world)

Dataiku, Object Detection with Deep Learning   *April 2018*

AgroParisTech, State of the FoodTech in France   *Jan 2018*

Academic Services

Neurocomputing · Reviewer   *2021 - Now*

Intelligent Transportation Systems Society's IV · Reviewer   *2021 - Now*

TPAMI · Reviewer   *2021 - Now*