Camille Couturier (PhD)

Publications
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Work experience

Sept. 2019 – Now **AI Resident**, Microsoft Research Cambridge.
[Stack: python, PyTorch, RLlib, git]
- The residency aims at training Research engineers in machine learning, by getting hands-on experience working on practical AI and machine learning problems.
- During the first project, together with another Resident, implemented a framework on top of PyTorch / BoTorch to perform Bayesian Optimization with a deep kernel. We used it to tune Reinforcement Learning agents playing VizDoom.

March 2017 – Now **Mentor Machine Learning and Data science**, Openclassrooms.com.
[Stack: python, scikit-learn, fbprophet]
- Supervizing students in their implementation of ML projects to validate this Master-level degree. Such projects include image recognition (classical methods and CNNs), natural language processing (NLP), recommender systems, time series forecasting.

May 2017 – August 2019 **Data Scientist**, Booking.com, Amsterdam.
[Stack: python, hadoop, pyspark, h2o, git]
- Strong focus on experimentation, empowering every Tech team to assess the impact of their changes through A/B/n testing, synthetic control experiments. I led the effort in estimating "beyond short term" impact, defining new metrics & methodologies in close collaboration with leadership and product managers.
- Other projects on providing insight (e.g. impact of customer service on customer loyalty).
- Actively involved in recruitment (data scientist interviews) and in training colleagues (basics of experimentation/hypothesis testing, tutorial on recommender systems at Pydata 2019).
- Kept in touch with latest ML techniques: initiated several peer-to-peer learning groups on deep learning, participated in the journal club, attended NeurIPS 2018.

August 2016 **Data Scientist**, S2DS London.
[Stack: python (pandas, scikit-learn, SQLAlchemy), SQLite, git]
- Worked as a consultant for a major British utilities company, building a recommender system to suggest heating schedules to customers based on their past usage.

May 2015 – April 2017 **Postdoctoral Researcher**, CNRS, Grenoble.
[Stack: C++ (ROOT), PostgreSQL, git]
- Statistical analysis of data from MIMAC, a detector designed to search for Dark Matter particles. I characterized the angular and energy reconstruction using different sources (natural radioactivity, neutron beams, ion beams) and improved the algorithms to reconstruct 3D tracks, crucial to identify the different particles species. Also compared the angular resolution with the competitors on Monte-Carlo simulations.
- I presented these results in two international conferences and published three papers in peer-reviewed journals (2 first author).

Sept. 2011 – Dec. 2014 **Researcher – PhD Candidate**, CNRS, Paris.
[Stack: C++ (ROOT, RooFit), qsub, svn]
- I challenged Einstein's postulate that "the speed of light is constant in vacuum", using first-class gamma-ray telescopes: H.E.S.S. in Namibia and NASA's *Fermi* space telescope. I used an effective model of the energies and arrival times of the photons to find the most likely deviations of the speed of light, and worked closely with other researchers of the H.E.S.S. and *Fermi* collaborations to set the most constraining limits (improvement by a factor of ~ 2 compared to previous constraints). This led to two papers in peer-reviewed publications, and two presentations at international conferences (+4 seminars and 6 internal conferences).
- Reprocessed the entire raw data of the H.E.S.S. telescopes (300 TB of data) and identified faulty pixels as well as periods of corrupted data; this led to a maintenance operation on site (Namibia) to fix these issues.

Oct. 2011 – June 2014 **Teaching assistant**, University Pierre & Marie Curie, Paris.
I taught 1st year medical and 2nd year engineering for a total of 200h. Received good feedback from the students, confirmed by a stable (>80%) attendance.

Academia and qualification

2011 – 2014 **PhD in Particle physics**, *University Pierre & Marie Curie, Paris*, highest honors.
Skills developped during the PhD project (previous section)
+ lectures on Bayesian statistics, courses on project management, communication and pedagogy.

2008 – 2011 **Master of Science in Engineering**, *Ecole des Mines de Saint-Etienne*.
General engineering, material science, computer science, mathematical methods, statistics, operational research, project management, economical sciences, marketing and communication.
In addition to the standard curriculum at Ecole des Mines:

2011 **Master of Science in Particle Physics**, University Joseph Fourier.

2009 **Master-level academic exchange in Physics**, University of Pune (India).

2009 **Bachelor of Science in Mathematics**, University Jean Monnet.

Other interests

Current sports Volleyball. Hiking. Diving.

Music Pianist. Amateur Saxophonist (previous member of "Fanfare à la Noix").