Benoît Corsini - PhD

Experience

Postdoctoral Researcher — *Eindhoven, Netherlands*
Technische Universiteit Eindhoven — *08/22 - Now*

Postdoctoral position in the *NETWORKS* group under the supervision of Remco van der Hofstad. Working on random models of graphs.

Research Intern — *Montreal, Québec, Canada*
Element AI — *02/20 - 09/20*

Internship in the Fundamental Research group under the *Mitacs Accelerate Program*. Studied anomaly detection in graphs using *Graph Neural Networks* (GNN). Achievements:

- Implemented two energy-based and self-supervised anomaly detection algorithms. Both of them are based on reproducing the original features of the nodes and comparing the original and the reproduced features to obtain an energy score.
- Created a synthetic dataset for anomaly detection useful to understand the strengths and weaknesses of anomaly detection algorithms.
- Wrote an article describing our methods and subsequent results. Our algorithms beat state-of-the-art techniques on the standard baseline datasets, as well as on our synthetic dataset.
- Developed computing project skills using various software such as *Git* and *Docker*.
- Gained advanced coding skills in *Python*.

Data Science Intern — *Berkeley, California, United States*
University of Berkeley — *03/16 - 07/16*

Research internship completed jointly with a French start-up (*Occi*, now *WeWard*). Studied the movements of clients in a superstore, tracked through their shopping carts. Achievements:

- Implemented a coupling algorithm to match clients and receipts with $\sim$ 95% success. This algorithm was used to determine the optimal organization of the store layout for greatest efficiency, including optimal product placement.
- The success of this initiative was highly regarded by potential clients and was one of the leading factors in the start-up's new business growth.
- Employed statistical algorithms (*Lasso*, *PCA*, *Lars*) and clustering algorithms (*K-Means*, *DBSCAN*, *Spectral Clustering*) to identify characteristic groups; at least $\sim$ 10 groups of "typical" customers were distinguishable.
- Designed a simple client oriented interface using the previous techniques. This tool was able to determine customer groups according to parameters chosen by the client, such as time spent in isles and types of products bought. It would then represent the properties of these groups and write a sentence describing each of them.

Education

Doctor of Philosophy (Math) — *Montreal, Québec, Canada*
McGill University — *2017 - 2022*

Doctoral studies in Discrete Probability under the supervision of Louigi Addario-Berry.
Thesis title: *Constructive methods for random permutations and random trees.*

Master of Advanced Studies (Math) — *Cambridge, United Kingdom*
University of Cambridge — *2016 - 2017*

Master's degree with taught courses in Probability and Statistics. *Part III* of the *Mathematical Tripos*.

Diplôme d'Ingénieur (Math and Computer Science) — *Palaiseau, France*
École Polytechnique — *2013 - 2017*

Bachelor and Master's degree in Probability, Statistics and Computer Science.

Contact

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Links

Personal website
Benoît Corsini
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Scholar

Computing

Python
HTML, CSS, JS
Git, Docker
Java, SQL, C++

Language

French
English
Italian
German
Dutch