Data Mining Researcher

— A Curriculum Vitae compiled on 6th October 2020.

○ Personal Data

Full name	Edouard Fouché
Nationality	French
Website	https://edouardfouche.com
Find me on	LinkedIn, Google Scholar, GitHub, Instagram

○ Skills

Expertise	**Data Mining / Machine Learning**, Algorithms, Visualization
Languages	**French** (Native), **English** (Full proficiency), **German** (Full proficiency)
Programming	**Python** (~6 years), **Scala** (~4 years), **R** (~3 years). Also familiar: Java, SQL, …
Soft skills	Writing, Leadership, Cultural Awareness, Agile Methodology, CRM
Familiar with	Git, Linux, Databases, LaTeX, Adobe & Office Suite

○ Work Experience

2020-now	**Postdoc in Data Mining, Karlsruhe Institute of Technology (KIT)**.
2016-2020	**Researcher & Ph.D. Candidate in Data Mining, KIT**.
	– Supervised 10+ student theses (Master/Bachelor level).
	– Worked with 2 research labs (UIUC, U of Tokyo) and 5 industry partners.
	– Published 8 peer-reviewed papers and a doctoral thesis.
2015-2016	**Working student, IBM R&D GmbH**, Böblingen.
	– Created *ibmdbpy*, an open-source interface between Python/Databases, which became the topic of my Master's thesis at KIT, written in collaboration with IBM.
2014-2016	**Working student, KIT**.
	– Teaching assistant for the CRM lecture and the Data Mining lab courses.

○ University Education

2020-now	**MBA, Quantic School of Business and Technology** (formerly, Smartly). One of the most selective MBA programs in the world, 7% admission rate.
2016-2020	**Ph.D. (Dr.-Ing.) in Data Mining, KIT**. Advisor: Prof. Dr.-Ing. Klemens Böhm. Thesis: "Estimating Dependency, Monitoring and Knowledge Discovery in High-Dimensional Data Streams". Summa Cum Laude (highest distinction).
2015-2016	**M.Sc. Computer Science, KIT**. German GPA: 1.4 (Very Good).
2010-2015	**Diplôme d'Ingénieur (Dipl. Ing. / M.Eng.), ESIEE Paris**. Major: Computer Science. Graduated with highest distinction and a top-1% award (listed below).

○ Honors & Awards

2019	**Best Paper Award** at Scientific and Statistical Database Management (SSDBM).
2018	**Software Campus participant**: Training, mentoring and €100K research grant.
2015	**Parcours d'Excellence** ESIEE Paris 2015 (Category: International).

○ Personal Interests

Photography (Analog/Digital), Hiking, Roller Derby (Coach at Roller Derby Karlsruhe).

Research Activities

○ **INTERESTS**

- Unsupervised Learning in High-Dimensional Data Streams
- Correlation Analysis
- Bandit Algorithms
- Outlier Detection / Clustering

○ **RESEARCH STAYS**

- Sept-Dec 2019. University of Illinois at Urbana-Champagin (Prof. Jiawei Han). IL, USA.
- June 2019. RIKEN AIP (Asst. Prof. Junpei Komiyama). Tokyo, Japan.

○ **TALKS**

12. *Estimating Dependency, Monitoring and Knowledge Discovery in High-Dimensional Data Streams: Doctoral Defence.* July 15, 2020. KIT. Karlsruhe, Germany.
11. *Scaling Multi-Armed Bandit Algorithms.* August 8, 2019. KDD'19. Anchorage, AK, USA.
10. *Monte Carlo Dependency Estimation.* July 23, 2019. SSDBM'19. Santa Cruz, CA, USA.
9. *Knowledge Discovery in High-Dimensional Streams.* July 8, 2019. BOSCH. Renningen, Germany.
8. *Knowledge Discovery in High-Dimensional Streams.* June 19, 2019. RIKEN AIP. Tokyo, Japan.
7. *Data Science for Large-Scale Pyrolysis.* May 09, 2019. KIT, Bioliq. Karlsruhe, Germany.
6. *Scaling Bandits for Energy Stream Monitoring.* October 10, 2018. KIT, Annual retreat of the DFG Research Training Group 2153: "Energy Status Data". Gleiszellen-Gleishorbach, Germany.
5. *Knowledge Discovery in High-Dimensional Streams .* April 11, 2018. TRUMPF AG, "Software Campus – Welcome Day". Ditzingen, Germany.
4. *A nice Bandit is like a nice Watch: It has some Complications.* August 17, 2018. KIT, Institute Retreat. Bühl, Germany.
3. *Knowledge Discovery in High-Dimensional Streams.* April 5, 2018. KIT, Outreach Workshop "Data Science for Engineers". Karlsruhe, Germany.
2. *Anomaly Detection in Streams of Energy Data.* October 10, 2017. KIT, Annual retreat of the DFG Research Training Group 2153: "Energy Status Data". Gleiszellen-Gleishorbach, Germany.
1. *Tutorial: Time Series Forecasting.* September 11, 2017. Uni Passau, Summer School on Future Energy Systems. Passau, Germany.

○ **POSTERS**

7. *Knowledge Discovery in Energy Status Data.* December 4, 2019. Review of the DFG Research Training Group 2153: "Energy Status Data". Karlsruhe, Germany.
6. *Scaling Multi-Armed Bandit Algorithms.* August 8, 2019. KDD'19. Anchorage, AK, USA.
5. *Monte Carlo Dependency Estimation.* July 23, 2019. SSDBM'19. Santa Cruz, CA, USA.
4. *Unsupervised Outlier Detection in Streams of Energy Data.* September 11, 2017. Uni Passau, Summer School on Future Energy Systems. Passau, Germany.
3. *Time Series Reduction: Shortening time series without losing energy related key characteristics.* September 11, 2017. Uni Passau, Summer School on Future Energy Systems. Passau, Germany.
2. *Unsupervised Outlier Detection in High-Dimensional Data Streams.* August 28, 2017. Ecole Polytechnique, DS^3: Data Science Summer School. Paris, France.
1. *Development of Data Anaylsis Algorithms for the Pyrolysis Process.* April 21, 2017. KIT, 2nd Bioliq Symposium. Karlsruhe, Germany.

List of Publications (Peer-Reviewed)

9. Edouard Fouché. 'Estimating Dependency, Monitoring and Knowledge Discovery in High-Dimensional Data Streams'. **Summa Cum Laude**. PhD thesis. KIT, Karlsruhe, July 2020

8. Edouard Fouché, Yu Meng, Fang Guo, Honglei Zhuang, Klemens Böhm and Jiawei Han. 'Mining Text Outliers in Document Directories'. In: *ICDM*. **Acceptance Rate: 9.8%**. IEEE, 2020

7. Edouard Fouché, Alan Mazankiewicz, Florian Kalinke and Klemens Böhm. 'A Framework for Dependency Estimation in Heterogeneous Data Streams'. In: *Distributed and Parallel Databases* (2020). DOI: 10.1007/s10619-020-07295-x

6. Avipsa Roy, Edouard Fouché, Rafael Rodriguez Morales and Gregor Möhler. 'In-Database Geospatial Analytics using Python'. In: *ARIC@SIGSPATIAL*. ACM, 2019, pp. 17–24. DOI: 10.1145/3356395.3365598

5. Hasan Ümitcan Yilmaz, Edouard Fouché, Thomas Dengiz, Lucas Krauß, Dogan Keles and Wolf Fichtner. 'Reducing energy time series for energy system models via self-organizing maps'. In: *Information technology* 61.2-3 (2019). 37.06.01; LK 01, pp. 125–133. ISSN: 2196-7032, 1611-2776. DOI: 10.1515/itit-2019-0025

4. Daniel Popovic, Edouard Fouché and Klemens Böhm. 'Unsupervised Artificial Neural Networks for Outlier Detection in High-Dimensional Data'. In: *ADBIS*. Lecture Notes in Computer Science. Springer, 2019, pp. 3–19. DOI: 10.1007/978-3-030-28730-6_1

3. Edouard Fouché, Junpei Komiyama and Klemens Böhm. 'Scaling Multi-Armed Bandit Algorithms'. In: *KDD*. **Acceptance rate: 9.0%**. ACM, 2019. DOI: 10.1145/3292500.3330862

2. Edouard Fouché and Klemens Böhm. 'Monte Carlo Dependency Estimation'. In: *SSDBM*. **Best Paper Award**. ACM, 2019. DOI: 10.1145/3335783.3335795

1. Edouard Fouché, Alexander Eckert and Klemens Böhm. 'In-Database Analytics with ibmdbpy'. In: *SSDBM*. ACM, 2018, 31:1–31:4. DOI: 10.1145/3221269.3223026