

Othmane Rifki, Ph.D.

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Summary

Data scientist and physicist with **8 years experience** in advanced statistical analysis of **petabyte-scale datasets** of proton collisions recorded at **CERN** and processed with worldwide **distributed cloud computing systems**. Deployed **online filtering** algorithms for on-the-fly selection of collision data. Maintained **monitoring and validation tools** for detector performance and data quality using **anomaly detection** algorithms and **time series** analysis.

Led several **cross-functional** teams with regular deadlines and quarterly publications searching for rare signal processes among large backgrounds, employing numerous optimization and regression modeling algorithms, leveraging **machine learning** techniques such as **deep learning**, **clustering** and **decision trees**.

Skills

- ☑ **Software:** Analyzed and visualized high-value datasets
 - **Languages** (10+ years): Python, C/C++/STL
 - **Data science** (3+ years): Matplotlib, Numpy, Scipy, Scikit-learn, Pandas, Keras, TensorFlow, OpenCV
 - **General** (5+ years): Matlab, Mathematica, Linux, Bash Scripting, Git, Svn, Jira
- ☑ **Leadership:** Led several scientific groups to achieve time-critical targets
 - Organized and chaired regular meetings and delegated tasks with emphasis on individual strengths
 - Managed teams of ~ 20 **researchers**
 - Supervised graduate students with successful thesis defenses
- ☑ **Publication and Presentation:** Excelled in verbal and written communication
 - Published in peer-reviewed particle physics and instrumentation journals; see a complete list [here](#)
 - Participated in several **international conferences** and presented scientific advancements
 - Authored complex research work for general audience; see an example [here](#)
 - **Media Coverage:** Interviewed and covered by multiple media houses; see an example [here](#)
 - **Fluent** in English, French, Arabic with basic skills in German

Experience

- ☑ **[Conseil Européen pour la Recherche Nucléaire \(CERN\)](#)** **Geneva, Switzerland**
Post-Doctoral Research Fellow, Associate Member *Aug 2016 - Present*
 - Built **economical** micron-level precision pick-and-place assembly unit using computer vision algorithms; see here a [video](#) of the machine at work
 - Oversaw the laboratory expenditure budget while coordinating a team of scientists, engineers, and suppliers
 - Supervised a team of 10 scientists to ensure high-quality data recorded by the ATLAS detector
 - Performed likelihood-based statistical analyses on a petabyte-scale dataset using predictive modeling algorithms
- ☑ **[Argonne National Laboratory \(ANL\)](#)** **Lemont, IL, United States**
Research Fellow *May 2014 - Jul 2016*
 - Used **IBM Mira supercomputer** to simulate complex particles production and interaction
 - Designed and implemented a **real-time data filtering** system to process 160 GBPS
 - Won \$30k Analysis Support Center Fellowship awarded to one student a year to work with ANL scientists

Education

- ☑ **University of Oklahoma (OU)** *Ph.D. in High Energy Physics* **Norman, OK, United States**
- ☑ **Drexel University** *B.Sc. in Physics with High Honors* **Philadelphia, PA, United States**

Activities

- ☑ **Triathlon:** Competed in the Hamburg Landesliga in the 2018 and 2019 seasons
- ☑ **Diving:** CMAS 3 star diver with TDI advanced nitrox certification