

Joeri R. Hermans

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Born: October 16, 1992
Nationality: Belgian

Experience

2017-now University of Liège
Doctoral Student & Teaching Assistant
Liège, Belgium



2016-2017 European Organization for Nuclear Research
Technical Student, IT-DB, Scalable Analytics
Geneva, Switzerland



My initial project was the implementation of an asynchronous profiler for distributed applications. Using this profiler, we identified a significant performance issue in Apache Sqoop (SQOOP-2906), and sped up the data transfer by 200% on average.

After coming into contact with people from the ATLAS and CMS experiment, we started researching and implementing Distributed Deep Learning solutions which resulted in the techniques and insights presented in my master thesis.

Summer 2015 Royal Meteorological Institute
Summer Intern, Data Management
Brussels, Belgium



Reimplementation of data enrichment system from various meteorological data sources such as RADAR stations, and smaller data gathering systems spread over the country. This implementation enables the RMI to build incrementally better short-term predictions for now-casting, which is a product delivered to the RMI's clients and users of their mobile application.

Projects

- 2017-now Potato FS • <https://github.com/JoeriHermans/potato-fs>
Ongoing study project to implement a P2P filesystem using FUSE.
- 2016-now Distributed Keras • <https://github.com/JoeriHermans/dist-keras>
Distributed Deep Learning with Apache Spark & Keras.
- 2016-now Hadoop Profiler • <https://github.com/cerndb/Hadoop-Profiler>
Asynchronous stack profiler for distributed systems.
- 2016 HackZurich Entry - SafeCar • <https://github.com/JoeriHermans/hackzurich-2016-entry>
All nearby cars communicate with each other, the infrastructure (e.g., traffic lights), and emergency services to maximize traffic safety and minimize injury.
- 2016 Warpdrive • <https://github.com/JoeriHermans/warpdrive>
Shell utility to navigate quickly between directories.
- 2014-now Intelligent Automation System • <https://github.com/JoeriHermans/Intelligent-Automation-System>
Flexible and very performant (home) automation system.

Awards

Best DKE Master Thesis 2017 Maastricht University, The Netherlands
On Scalable Deep Learning and Parallelizing Gradient Descent

Education

- 2017-now Ph.D. in Computer Science, University of Liège
- 2015-2017 M.Sc. in Artificial Intelligence, Maastricht University 8.11/10 GPA (A grade)
- 2011-2014 B.Sc. in Computer Science with Physics minor, Hasselt University

Selected Talks

- 2016 CMS HEP-DL with CSCS, CERN
Accumulated Gradient Normalization
- 2016 Inter-Experimental Machine Learning Working Group, CERN
Distributed Gradient Based Optimization
- 2016 Hadoop Summer Tutorials, CERN
Introduction to Apache Spark

Publications

- 2017 Accumulated Gradient Normalization, ACML (under review)
- 2017 On Scalable Deep Learning and Parallelizing Gradient Descent, CDS
- 2016 Developing and optimizing applications for the Hadoop environment, CHEP

Skills & Expertise

Programming Languages

C/C++ • Python • Java • SQL • PHP • Bash • MatLab

Frameworks

PyTorch • TensorFlow • Keras • MPI • Apache Spark • Apache Hadoop • Apache Kafka • OpenCV

Skills

Machine Learning • Distributed Computing • Version Control • Web Development • Photometry

Languages

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|--------------------------------|----------------|
| Full professional proficiency: | English |
| Limited proficiency: | French, German |
| Native proficiency: | Dutch |

Interests

Astronomy • Physics • Optimization Algorithms • Machine Learning • Neural Networks • Distributed Systems • Photography