

Rodrigo Agundez

Curriculum Vitae



Contact

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Languages

 Spanish
 English
 Dutch

360°

During my academic years, I obtained two master's degrees in the area of Nanoscience and Nanotechnology, followed by a Ph.D. in Theoretical Physics from TUDelft university with a focus on Quantum Mechanics and Quantum Computing.

Motivated by working in something a bit more applicable, I decided to start a career in Data Science. This decision has resulted in a successful career, working on multiple high-impact projects, giving talks, giving trainings to high-profile companies and contributing to high-impact open source projects.

I would say that even that my level is advanced in a versatile way within Data Science, my most relevant skills are:

- Taking models into production with robust modeling pipelines.
- Thinking quick and outside the box.
- Be pragmatic and deliver value.
- Coach and increase the level of data scientists around me.

Experience

2019 - Now

KERAS

open-source

Collaborator/Committer

Keras is one of the most used Deep Learning frameworks and I am a part of the core development team for the keras preprocessing component of the framework. The responsibilities are:

- Participate in the discussions concerning the API.
- Discuss and assess on how to solve issues from the community.
- Solve issues from the community by offering advice or building / coding a solution.
- Review/merge pull requests from contributors.
- Improve the framework by building software features.

~\$ Keras, Python, Travis, git, PyData stack, deep learning, unit testing, continuous integration

2018 - 2019 **Schiphol Royal Group** via GoDataDriven

Amsterdam

Data Science Lead

Schiphol group manages the Schiphol airport in Amsterdam. I am the technical lead of the Data Science and Engineering Lab which consist of 20 people. Some of my responsibilities are:

- Solve technical impediments hands-on or via discussions.
- Establish best practices in the team, technical and nontechnical.
- Make decisions regarding the team's roadmap.
- Together with the business perform technical assessments.
- Lead technical hiring efforts and interviews.
- Review pull requests sporadically to share knowledge.
- Intervene hands-on in projects whenever is required.
- Coaching sessions to elevate the team's level.
- Technical advice at the beginning and during each project.
- Decisions about the data lake and advanced analytics platform.
- Technical exposure of the team to the organization.

~\$ Spark, Azure, Databricks, Python, Keras, Tensorflow, git, Kubernetes, continuous integration, deep learning, time-series

2018 - 2019 **NSPIRE/KPN** via GoDataDriven

Amsterdam

Data Science Lead

NSPIRE is a mobile application available for download which makes recommendations about what to do in your leisure time. I joined the project since the beginning and I was responsible for building the artificial intelligence part of with a team of DS. Some of my responsibilities were:

- Advise on decisions about the application and technologies used.
- Work closely with an editorial office to fine-tuning the AI system.
- Implement several recommendation models.
- Taking the AI part of the application all the way from development to production.
- Supervise several data scientist during the time of the project.
- Share knowledge and communicate with internal data scientists such that they could take up the project after I leave.

~\$ Python, git, PyTorch, embeddings, Recommendation Systems, Deep Learning, Redis, Kubernetes

2017 - 2018 **Unilever** via GoDataDriven

Rotterdam

Senior Data Scientist

I worked developing a fuzzy name matching algorithm for entity data of all countries within the Unilever market. Data coming from different sources has been unavoidably duplicated. The goal was to create golden records which will be enriched from all matching ones. This is a known problem since already with 1 million records yields a cartesian product of 10^{12} comparisons, which is unfeasible. I was able to produce a high performance approach which mixed machine learning, distributed computing and highly optimized algorithms, this approach yield a run-time of 1.5hrs for ~10 million records across 50 countries. The algorithm was put in place in production by data engineers.

~\$ Spark, Python, C++, Cython, Jupyter, TF-IDF, n-grams, Azure, ssh, git

2017 **KPN** via GoDataDriven

Amsterdam

Senior Data Scientist

I worked in the commercial analytics department of KPN (Telecom). I had several roles, I was doing the work of a senior data scientist by giving advice and direction to several projects, at the same time he helped the analytics team build better models. In addition he built a tool where analysts could easily extract insights from the predictions, specially for the predictive drivers of classification models. Such insights are in production and are used to guide marketing campaigns.

~\$ R, Python, Javascript, Jupyter, RandomForest, ssh, ForestFloor, git, Teradata, Flask, Unicorn, Jenkins


2017 **Knab** via GoDataDriven

Hoofddorp

Data Scientist / Data Engineer

I worked in the insurance department building and productionizing a ranking algorithm. This model matches the best insurances to the customer needs and characteristics. I wrapped the model in an API to make it accessible to a future application in production, this implies continuous integration and automation of ETL processes. As a second project I built and automated ETL and cross-reference process that required encryption due to security measures. Both projects were used to provide a solution in production.

~\$ Python, Pandas, Airflow, HDFS, S3, Postgres, ssh, git, Flask, gpg encryption



2017 **NLE** via GoDataDriven Rotterdam
Data Scientist
In this project I was responsible for adding a model to an existing Spark pipeline. This model assigns customer conversion probabilities to different price offering strategies. The type of model does not exist in Spark, therefore a customized implementation was built which could integrate seemingly to the already existing SparkML pipeline.

~\$ Spark, Python, Pandas, ssh, git, S3, PyMC3, SparkML

2016 - 2017 **Bakkersland** via GoDataDriven Hedel
Data Scientist
I worked as the data scientist optimizing an existing shelf-replenisher prediction system for shops across The Netherlands, such system is used in production to maximize profit and minimize waste. I also developed a customer predictive algorithm to use as an input to improve the shelf-replenisher predictions. In addition I migrated all scheduled jobs to Airflow, and helped built a dashboard to monitor the model performance in production.

~\$ Python, Pandas, Airflow, R, dplyr, Shiny, Postgres, ssh, git

2016 - 2019 **Data Science trainer** Amsterdam
I have deliver multiple trainings to data scientists from many different companies, some public, some during events and some in-company. From the feedback my score has always been above 8.5 with 9.5 or 10 in "trainer was knowledgeable".

Some of these trainings have been:

- Advanced Python for Data Science
- Deep Learning
- Time - series

Some of the companies have been:

- Deloitte
- Schiphol
- ING
- Bol.com
- Albert Heijn
- Ahold Delhaize



2016 - 2019 **GoDataDriven**

Amsterdam

Data Maverick

Apart from working with customers I have been involved in the development of the GoDataDriven accelerator training program. I have been the trainer of several topics:

- Deep learning
- Data science with python
- Making things scale,
- Time-series

2016 **Leiden University/Infostrada**

Leiden

Data Scientist

I developed a machine learning algorithm on top of a multiplayer Elo ranking system to assess the expected performance of athletes in different sports. The algorithm was capable of calculating probabilities of outcomes in matches, predicting placings in tournaments and identification future sport talents.

~\$ R, RStudio, Shiny, dplyr, MySQL

2016 **Project @ Qualogy**

Rijswijk

Data Scientist

I worked on the development of a face recognition system in the context of a smart-office. I was the core developer of the machine learning algorithm and also worked on cleaning and preparing the image data. He also contributed to a user interface prototype.

~\$ Python, Flask, Pandas, OpenCV, HTML, CSS, git, ssh

2015 - 2016 **Qualogy**

Rijswijk

Data Scientist

Most of the time I worked at the client, internally he took the role of presenting what the newly data science department was about to the rest of the company. I also created with two more colleagues a Cloudera Hadoop workshop which was given during a week to IT employees from other departments.



2011 - 2015

TU Delft, UNSW

Delft, Sydney

Ph.D. Researcher

During my research I worked on studying quantum transport in one-dimensional systems. In particular I used quantum mechanics to produce theoretical calculations of properties of the quantum transport. The main complexity of the study was the strong electron-electron interactions which cannot be treated as a field at this scale but have to be accounted for specifically in the Hamiltonian. By employing a boson approach to the Hamiltonian I was able to produce some approximations and successful results.

A second part of my research was centered on proposing a protocol that could be use as a data bus in a quantum computer. Like a classical computer needs a data bus to communicate between interfaces, a quantum computer could potentially need a quantum data bus to transfer information from on component to another. This research concentrated in proposing a protocol composed of gates manipulations to achieved transport of the superposition state in an adiabatic channel.

Both studies were performed in collaboration with an experimental group in Sydney, with which publications resulted from the studies.

~\$ Matlab, Mathematica, ssh, Latex, Linux, Inkscape

Education

2018	Reinforcement learning	San Francisco
2017	Advanced Python Mastery	David Beazly
2017	Advanced Deep Learning	San Francisco
2016	Cloudera Developer Training for Apache Spark	Cloudera
2016	Deep Learning	Udacity, Google
2016	Cloudera Hadoop	Big Data Fundamentals, Oracle
2015	Machine Learning	Coursera, Andrew Ng
2011-2015	Ph.D. in Theoretical Physics	Delft University of Technology
2010-2011	Master of Science in Nanoscience	Delft University of Technology
2009-2010	Master of Science in Nanotechnology	Katholieke Universiteit Leuven
2004-2008	Bachelor in Physics	UABC

Speaker

2018	Webmindar with Dataiku	Amsterdam, NL
	Talk: Deep learning use cases	
2018	CIONET	Amsterdam, NL
	Talk: The future of Deep Learning	
2018	Big Data Expo	Utrecht, NL
	Talk: Deep Learning, the engine of the AI revolution	
2018	PyData Meetup	Amsterdam, NL
	Talk: Code breakfast transfer learning	
2018	Spark + AI Summit	San Francisco, USA
	Talk: Operation Tulip, Deep Learning to automate auction processes	
2018	Dutch data science week	Amsterdam, NL
	Tutorial: Deep learning day	
2018	PyData Amsterdam	Amsterdam, NL
	Talk: Hands-on intro to Deep Learning	
2018	PyData Meetup	Amsterdam, NL
	Talk: Code breakfast deep learning edition	
2018	Vrij University of Amsterdam	Amsterdam, NL
	Talk: From PhD to GDD	
2016	Data Science Summit Europe	Jerusalem, Israel
	Tutorial: Face Recognition with OpenCV and TensorFlow	
2016	Seminar Data Science and Sports	Delft, NL
	Talk: Tools for Predicting Sports Outcomes based on Rankings	
2016	PyData Amsterdam	Amsterdam, NL
	Tutorial: Building a live face recognition system	
2015	Physics @FOM	Veldhoven, NL
	Talk: Local Kondo temperatures in atomic chains	



Publications

- 2017 ~\$ **R. R. Agundez**, C. D. Hill, L. C. L. Hollenberg, S. Rogge, M. Blaauboer, Superadiabatic quantum state transfer in spin chains, Phys. Rev. A 95, 012317 (2017) [🔗](#).
- 2016 ~\$ S. Blok, **R. R. Agundez**, L. A. Maduro, M. Blaauboer, and S. J. Van Der Molen, Inelastic cotunneling with energy-dependent contact transmission , The Journal of Chemical Physics **146**, 092325 (2016) [🔗](#).
- 2015 ~\$ **R. R. Agundez**, J. Salfi, Sven Rogge and M. Blaauboer, Local Kondo temperatures in atomic chains, Phys. Rev. B: Rapid Comms. 91, 041117(R)(2015) [🔗](#).
- 2013 ~\$ **R. R. Agundez**, J. Verduijn, Sven Rogge and M. Blaauboer, Magnetic flux tuning of Fano-Kondo interplay in a parallel double quantum dot system, Phys. Rev. B 87, 235407 (2013) [🔗](#).
- 2013 ~\$ J. Verduijn, **R. R. Agundez**, M. Blaauboer and Sven Rogge, Non-local coupling of two donor-bound electrons, New J. Phys 15, 033020 (2013) [🔗](#).

Extras

3rd Place - National Physics Olympics in Mexico.

7th Place - National Probability and Statistics contest in Mexico.

1st Place - State Mathematics contest in Baja California, Mexico.