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Nationality Dutch  
Date of birth 10/02/1984  
Residence Hillegom



## Summary

Ruud is a highly motivated problem solver. He has a hands-on approach, is driven by his curiosity and has an entrepreneurial mind-set. With his interdisciplinary background and a specialisation in Physics he is able to communicate across multiple levels - ranging from technical experts to business stakeholders. Has multiple years of research experience in top class data-driven research institutes as well as practical experience implementing Machine Learning solutions in business environments.

As an experienced Python developer in the domain of Machine Learning and Data Science, with a natural focus on cross-discipline collaboration, he is best positioned at the intersection of the technical teams and the translation to the business problem at hand. Taking into account what is technically feasible and what adds the most value in terms of transforming business processes, he is mainly motivated by making an impact.

Has many years of experience in positions as the technical lead of the team. Believes that augmented decision making is the way forward, where human decision making is enhanced by the application of Machine Learning solutions rather than replaced by fully autonomous systems. Lean start-up approach enthusiast always looking for opportunities.

## Work experience

### Senior Data Scientist and Team Lead @ Royal Schiphol Group

The Future Group, Zoetermeer, Netherlands

Present | 2021Q1 Creating models and simulations needed for the airport operational planning. Passenger departure flow simulations with the goal of integral optimisation. Forecasting waiting time, predicting demand capacity bottlenecks in the operation. Predicting the main drivers of Schiphol throughput by modelling runway configuration and capacity, to determine inbound and outbound traffic and identify demand capacity bottlenecks that affect the whole operation.  
*Python / Spark / ML Ops / Capacity Forecasting / Passenger Simulation / Gitlab CI/CD*

### Chapter Lead Analytics @ ING

The Future Group, Zoetermeer, Netherlands

2021Q1 | 2019Q2 Developing machine learning models to improve the scalability of the processes within the Collections department. Building and leading a team of data scientists and data analysts to make the department more data driven. Core achievements are the development of a likelihood to pay model, and a prevention model that is used to target customers that experience financial stress well before they are at risk of defaulting. Standardised model feature creation.  
*Python / Spark / SQL / ML Ops / Risk Segmentation / Kanban / Agile / GitLab CI/CD*

### **Lead Data Scientist and Product Owner @ Tele2**

The Future Group, Zoetermeer, Netherlands

- 2019Q1 | Developing a solution to monitor and analyse mobile voice quality in the Tele2 4G network. Integrating call data records related to the voice call quality to perform root cause analysis.
- 2018Q3 | Building a project team of data engineers and scientists. Modelling call quality degradation and determine main contributing factors. Automate data ingestion pipelines on Hortonworks.
- Python / SQL / Scala / Spark / Hadoop / Cloudera / Hortonworks / Scrum / Agile*

### **Freelance Data Science Consultant**

The Future Group, Zoetermeer, Netherlands

- 2022Q4 | Independent data science consultant and partner at The Future Group in the Machine Learning division. Focus on data science, machine learning, artificial intelligence, data engineering, internet of things, smart cities and more in general the impact of information technology on society and the human condition. The Future Group division Trending Technologies is a partnership of IT experts working with new technologies, evaluating their advantages and disadvantages and helping our clients implement novel solutions and ways of working.
- 2018Q3 |
- Python / Scala / Spark / Machine Learning / Data Science / Artificial Intelligence / Deep Learning*

### **Machine Learning Engineer @ Wärtsilä**

QNH, Amsterdam, Netherlands

- 2018Q3 | Building a generalised data pipeline for market prediction. In this project, a proof of concept data science model is transcoded into a client tailored Python module for pre-processing, feature engineering, and modelling. Creating a production ready market prediction toolkit.
- 2018Q1 |
- Python / AWS / Machine Learning / Supervised Learning / Market Prediction / Scrum*

### **Blockchain Developer**

QNH, Amsterdam, Netherlands

- 2018Q3 | Redesigning the contracting between QNH clients and contractors using Blockchain technology. Responsible for developing the smart contract architecture and implementation in Solidity.
- 2017Q4 | Implemented a smart contracting prototype on a private Blockchain based on Ethereum.
- Ethereum / Solidity / Smart Contracts / Agile*

### **Lead Data Science Consultant @ PGGM**

QNH, Amsterdam, Netherlands

- 2017Q4 | Prototyping Data Science initiatives and developing new business models to optimise processes. Lead Data Scientist starting off one of the first Data Science teams within PGGM. Data science prototypes include call-centre forecasting, fraud detection, bankruptcy risk analysis, client profiling and micro-targeting for marketing purposes.
- 2017Q1 |
- Python / SQL / Machine Learning / Lean Start-up / Business Model Canvas / Bayesian Statistics*

## **Blockchain Developer @ D-VAULT (Co-Founder)**

D-VAULT, Amsterdam, Netherlands

present | Prototyping a Blockchain solution for load balancing in the energy sector. Enabling high resolution utility data with privacy by default through distributed ledger technology. Hands on experience with IOTA tangle, decentralised aggregation methods such as push sum protocol, synchronisation of data exchange on a network of raspberry pi's.

2018Q1 | *Python / IOTA / Blockchain Hackathon / Raspberry Pi / IoT / Scrum*

## **Business Analytics and Data Science Consultant**

QNH, Amsterdam, Netherlands

2018Q3 | Developing predictive models to enable clients to make data-driven business decisions. Prototyping of new business models such as predictive analytics on advertisements, classification algorithm for job descriptions, trend reversal analysis on time series and predictive maintenance.

2016Q3 | *Python / Machine Learning / Bayesian Statistics / Natural Language Processing / Deep Learning*

## **Physics Researcher 2D Electronic Spectroscopy (PhD)**

Vrije Universiteit, Laserlab Amsterdam, Netherlands

2016Q3 | Python Developer in innovative research environment. Built software to measure, control and analyse big research data. Fully automated data collection and processing in a state of the art two-dimensional electronic spectroscopy setup. Signal detection of quantum physical effects in photosynthetic charge separation. Design and development of calibration, signal optimisation and global analysis techniques in order to study charge separation dynamics on a femtosecond timescale. Teaching Physics practicum for Science Business and Innovation.

2014Q2 | *Python / Big Data / Research / Laser Physics / Femtosecond Spectroscopy / Spectral Imaging*

## **Physics Researcher Optomechanics**

FOM-Institute for Atomic and Molecular Physics, (AMOLF)

2014Q2 | Built tailored object-oriented software in Python to enable ground-breaking research on light matter interactions at the Nano-scale. Fully automated data acquisition, processing and analysis of a microscopic physics experiment in a real-time fashion. Hands on experience with nanophotonic optomechanical systems that serve as extremely sensitive and fast sensors of mechanical displacement. The latter can be used to control quantum state of small objects.

2013Q1 | *Python / MATLAB / Mathematics / Laser Physics / Nanotechnology / Real-time Data Analysis*

## **Product Developer and Data Analyst**

Effectory Amsterdam, Netherlands

2012Q1 | Design and test tailor made statistical methods to provide clients with actionable survey insights to help them drive employee engagement. Interfacing development and client-oriented teams within Effectory for the implementation of these methods. Proof of concept for a text mining solution in Python using natural language processing.

2010Q2 | *Python / SQL / Natural Language Processing / Statistics / Scrum*

## Education

### MSc Physics

University of Amsterdam (UvA), Netherlands

Advanced Matter and Energy Physics (AMEP)

2014 Courses: Nano photonics, Bose Einstein Condensates, General Relativity, Big Issues in  
| Emergent Energy Materials, Statistical Physics and condensed Matter Theory,  
2012 Superconductivity, Quantum Gases, Wetting and Capillarity

**Research** MSc: Hybrid cavity-nanoantenna systems. Coupling of whispering gallery mode resonance and plasmonic nano antennas. Opto-mechanics.

Photonic Forces Group, FOM institute AMOLF Amsterdam, Netherlands

### BSc Bèta-gamma Physics (major) and Philosophy (minor)

Institute for Interdisciplinary Studies, University of Amsterdam, Netherlands

2011 Beta-gamma is an interdisciplinary bachelor with a broad academic focus on natural sciences,  
| life sciences, social sciences, economics and philosophy. Taking an integral approach, to  
2007 complex cross-discipline problems in science. Specialisation in experimental Physics.

Physics courses: Electrodynamics, Quantum mechanics, Relativity theory, Statistical physics, Classical Mechanics; Philosophy courses: Philosophy of Science, Epistemology, Philosophy and Foundations of Physics

**Research** Bèta-gamma: Self-organized criticality an interdisciplinary study of complexities

Institute for Interdisciplinary Studies

**Research** BSc Physics: Behavioural study of coupled magnetic dipoles

University of Amsterdam, Institute for Theoretical Physics

### BSc Civil Engineering

Technical University Delft, Netherlands

2007 Engineering courses: Linear Algebra, Construction mechanics, Soil mechanics, Fluid dynamics,  
| Numerical methods for differential calculus, Hydrology, Integral Design, Dynamical Modelling,  
2004 Statistics, Geographic information systems

### VWO

St.-Odulphuslyceum, Tilburg

2003 St.-Odulphuslyceum Gymnasium Tilburg  
| Natural Sciences & Technology  
1996 Courses: Physics, Mathematics, Chemistry, Economics

## Publications

Ferretti, M., Hendrikx, R., Romero, E., Southall, J., Cogdell, R. J., Novoderezhkin, V. I., ... & van Grondelle, R. (2016) Dark States in the Light-Harvesting complex 2 Revealed by Two-dimensional Electronic Spectroscopy. *Scientific Reports*, 6. [dx.doi.org/10.1038/srep20834](https://doi.org/10.1038/srep20834)

Ma, F., Yu, L. J., Hendrikx, R., Wang-Otomo, Z. Y., & van Grondelle, R. (2016, December) Direct Observation of Energy Detrapping in LH1-RC Complex by Two-Dimensional Electronic Spectroscopy. In *Journal of the American Chemical Society(JACS)* [https://dx.doi.org/10.1021/jacs.6b11017](https://doi.org/10.1021/jacs.6b11017)

Ruesink, F., Doleman, H. M., Hendrikx, R., Koenderink, A. F., & Verhagen, E. (2015). Perturbing open cavities: Anomalous resonance frequency shifts in a hybrid cavity-nanoantenna system. *Physical Review Letters (PRL)*, 115(20), 203904. [dx.doi.org/10.1103/PhysRevLett.115.203904](https://doi.org/10.1103/PhysRevLett.115.203904)

Hendrikx, R., Doleman, H., Ruesink, F., Koenderink, A. F., & Verhagen, E. (2015, September). Optical antennas in hybrid photonic systems. In *Microwave Integrated Circuits Conference (EuMIC), 2015 10th European* (pp. 397-400). IEEE. [dx.doi.org/10.1109/EuMIC.2015.7345153](https://doi.org/10.1109/EuMIC.2015.7345153)

Ruesink, F., Doleman, H. M., Hendrikx, R., Koenderink, F., & Verhagen, E. (2015, May). Coupling nano-antennas to microcavities: radiative interactions cause strong and tunable frequency shifts. In *CLEO: QELS\_Fundamental Science* (pp. FTu2E-6). Optical Society [dx.doi.org/10.1364/CLEO\\_QELS.2015.FTu2E.6](https://doi.org/10.1364/CLEO_QELS.2015.FTu2E.6)

## Awards & Achievements

- Third price in energy track of Blockchaingers Hackathon 2018, Dutchchain
- University Research Fellow 2015-2016, Faculty of Sciences, Vrije Universiteit Amsterdam (VUA)
- Editorial highlight in Physical Review Letters for the research performed at AMOLF
- FOM news 'Nanoparticles unexpectedly make light move faster', 12/11/2015
- Aristotle reward best interdisciplinary research in Bèta-gamma propaedeutic, Institute for Interdisciplinary Studies (IIS), Universiteit van Amsterdam (UvA), 2008

## Programming

Expert: Python, Spark, MATLAB  
Competent: SQL, Mathematica, R  
Familiar: JavaScript, PHP, JSON, HTML, CSS

## Languages

Native: Dutch  
Academic: English  
Basic: French / German

## Tech

Languages	Python, R, MATLAB, Mathematica, Solidity, PHP, HTML, JSON
Python	Pandas, NumPy, Scikit-learn, XGBoost, SimPy, Jupyter labs, FastAPI
Analytics	Bayesian Statistics, Machine Learning, Monte Carlo Markov Chain (MCMC),
Ledger	SQL, NoSQL, Blockchain, Ethereum, IOTA Tangle, AWS S3
Repository	Git, Gitlab, Mercurial, Subversion, Docker, Amazon Web Services (AWS)
Hardware	Raspberry Pi, Arduino, Home Automation, Network Security
Creative	Photoshop, Lightroom, After Effects, Cinema 4D, Resolume, Madmapper
Methods	Lean Start-up, Business Model Canvas, Kanban, Agile, Scrum