Roeland C. Wiersema

Nijmegen, The Netherlands, born March 1st, 1994

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Education

PhD in Physics and Astronomy **January 2020 - Now**
Waterloo University and Vector Institute *Toronto, Canada*
Research project in Quantum Machine Learning supervised by Professor Juan Felipe Carrasquilla and Professor Roger Melko.

Msc in Particle and Astrophysics **September 2016 - September 2019**
Radboud Univeristy *Nijmegen, The Netherlands*
Specialized in particle physics, machine learning and computational physics. This is a research master in physics and astronomy, with one year of courses and one year of research at a department of choice. Master's thesis on the topic of quantum machine learning was awarded with a 9/10 grade.

EdX course by professor Wittek on quantum machine learning. **Februari 2019 - April 2019**
Toronto Univeristy *Online*
Online course on implementing basic quantum circuits for machine learning purposes. Obtained a 100% score and was selected for mentoring for the next installment of this course.

Bsc in Physics and Astronomy **September 2012 - July 2016**
Radboud Univeristy *Nijmegen, The Netherlands*

Professional Experience

Startup data science **June 2017 - Present**
GraphKite *Nijmegen, The Netherlands*
Founded a company together with three fellow students for machine learning consultancy. Completed a four month assignment for a major Dutch insurance company. Currently doing a project on fall prevention for the elderly using Internet of Things devices.

Research Experience

Msc in Particle and Astrophysics
- Performed research in the interdisciplinary field of quantum machine learning.
- Wrote, tested and optimized numerical codes in Python for the mathematical model I had developed.
- Wrote an academic paper on the work of my thesis and submitted it to *Physical Review A*.
- Presented my work during meetings with other groups and participated in monthly physics seminars.
- Reproduced quantum Monte Carlo results on quantum annealing with highly optimized C code.
- Implemented a Monte Carlo algorithm that sampled photon four-vectors to calculate scattering matrices.

Bsc in Physics and Astronomy
- Implemented a machine learning model for predicting neuronal connectivity in the mouse brain as part of a three month research internship.

Startup data science
- Researched and implemented statistical risk models for an insurance company.
- Investigated signal processing methods for high frequency sensor data.

Publications

Wiersema, R.C. and Kappen, H.J., *Implementing perceptron models with qubits*, Phys. Rev. A **100**, 020301(R), 2019.

Skills and Languages

- **Programming:** Python, Cython, C/C++, TEX, Matlab
- **Python Frameworks:** Tensorflow, QisKit, PennyLane Scikit-learn, openCV, MPI4py
- **Software:** Git, InkScape, Adobe InDesign
- **Languages:** Dutch (native speaker), English (Cambridge CAE Grade A, TOEFL score 112/120), German (mediocre)

Extracurricular activities

Educational Program Committee Physics **September 2017 - June 2018**
Radboud University *Nijmegen, The Netherlands*
Handled student complaints and monitored the quality of physics education.

Theory of Condensed Matter Physics application committee **January 2018 - May 2018**
Radboud University *Nijmegen, The Netherlands*
Assessed the teaching capabilities of the applicants for the position of assistant professor.

Biophysics application committee **Oktober 2019 - December 2019**
Radboud University *Nijmegen, The Netherlands*
Assessed candidates' competencies for a full professorship position.

Achievements

Penny Lane Software Competition **August 2019 - Oktober 2019**
Xanadu *Toronto, Canada*
Participated in the Xanadu software competition and took the first place in the Software category.

Deep Learning Robotics Challenge **September 2017 - November 2017**
Volkswagen Data Lab *Munich, Germany*
Competed with a team in a five week deep learning hackathon in Munich in 2017 and took the second place.

Kaggle data science competition **February 2017 - June 2017**
Kaggle *Online*
Competed with a team in two international machine learning competitions in 2017 and got two top 2% scores.

Grants

R&D joint venture grant: €164.582 **August 2018 - Present**
Graphkite *Nijmegen, The Netherlands*
Wrote a grant proposal together with the CEO of another start-up for fall prevention for the elderly, which was awarded in December 2018.

Teaching

- Teaching assistant Nonlinear Dynamics and Chaos, 2016
- High school tutor physics and mathematics, 2016
- Tutor for first year students, 2014

Conferences

Attended

- DALI/ELLIS, San Sebastian, September 2019

Speaker

References

Professor H.J. Kappen
Department of Biophysics
Radboud University
Heyendaalseweg 135, 6525 AJ Nijmegen, The Netherlands
b.kappen@science.ru.nl

Professor J. Mentink
Department of Spectroscopy of Solids and Interfaces
Radboud University
Heyendaalseweg 135, 6525 AJ Nijmegen, The Netherlands
j.mentink@science.ru.nl

Professor P. van der Smagt
Volkswagen Group
Ludwig Maximilian Universität München
Ungererstrasse 69, 80805 München, Germany
smagt@brml.org

Other

- I enjoy listening to obscure music and playing the guitar or drums.
- I do recreational math as a hobby by solving problems on Project Euler.
- In the weekends, I play as a left back in a very mediocre football team.