Arjan Cornelissen

Through creativity and perseverance, I strive to obtain optimal results. Sharing knowledge and teaching intricate concepts in a structured way give me a great sense of satisfaction. Problem-solving, especially through programming, never ceases to thrill me.

Personal details

Name:	Arjan Cornelissen
Date of birth:	August 3rd, 1996
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Personal characteristics

- **Analytic thinker:** I like to identify links between seemingly unrelated topics, and constantly try to apply the knowledge I have acquired over time.
- **Hardworking:** Throughout my education, I have achieved excellent results with perseverance and challenging myself.
- **Experienced programmer:** I have a thorough experience with programming in a wide range of languages.

Publications

Near-optimal Quantum Algorithms for Multivariate Mean Estimation ***(November 2021)***
In collaboration with Yassine Hamoudi and Sofiene Jerbi
In preparation, preprint available at arXiv:2111.09787

Quantum algorithms for multivariate Monte Carlo estimation ***(July 2021)***
In collaboration with Sofiene Jerbi
In preparation, preprint available at arXiv:2107.03410

Scalable Benchmarks for Gate-Based Quantum Computers ***(April 2021)***
In collaboration with Johannes Bausch and András Gilyén
In preparation, preprint available at arXiv:2104.10698

Span programs and quantum time complexity ***(August 2020)***
In collaboration with Stacey Jeffery, Maris Ozols and Alvaro Piedrafita
Appeared in Proceedings of the 45th International Symposium on Mathematical Foundations of Computer Science (MFCS 2020)

Education

PhD Quantum Computing ***(October 2018 – Present)***
University of Amsterdam / QuSoft
Primary direction of research: Quantum Algorithms
Supervisor: Maris Ozols

Master Applied Mathematics ***(September 2016 – September 2018)***
Delft University of Technology
Area of specialization: Analysis / Quantum Computing
Average grade: 9.4/10
Thesis project: Quantum Gradient Estimation and its application to Quantum Reinforcement Learning
Supervisors: Ronald de Wolf and Martijn Caspers

Double Bachelor Applied Mathematics & Applied Physics ***(September 2013 – August 2016)***
Delft University of Technology
Average grade: 9.3/10
Thesis project: Quantum Computation – Shor's algorithm
Supervisors: Jan van Neerven and Miriam Blaauboer

Work experience

Internship Mathematical Consulting ***(September – December 2017)***
Sioux LIME
I have developed a software package that simulates the propagation of monochromatic waves through optical setups, alongside with a numerical method that orthonormally integrates moving frames.

Teaching Assistant ***(September 2014 – September 2018)***
Delft University of Technology
I taught courses at the Bachelor and Master of Applied Mathematics.

Freelance Writer ***(September 2014 – August 2016)***
Malmberg
I assisted in the development of a mathematics textbook for secondary school students.

Awards

ASML Graduation Prize for Mathematics ***(November 2018)***
Koninklijke Hollandsche Maatschappij der Wetenschappen (KHMW)
Award for the best master's thesis in mathematics in the Netherlands.

Young Talent and Encouragement Award ***(November 2014)***
Koninklijke Hollandsche Maatschappij der Wetenschappen (KHMW)
Award for obtaining the highest average grade among the first-year students of Applied Physics.

Other activities

CWI PhD Activity Committee ***(January 2020 – present)***
This committee organizes social events for employees of CWI. I am co-chair of this committee at present.

Google Hashcode Finalist ***(April 2021)***
We ranked 22nd in this team-based programming competition out of over 9000 competing teams.

Benelux Algorithm and Programming Contest (BAPC) ***(Fall 2017, 2019, 2020 & 2021)***
This is a programming competition for teams from the Netherlands and Belgium.

International Mathematics Competition (IMC) ***(August 2017, July 2018, August 2019)***
I earned a silver medal at this worldwide mathematics competition in Blagoevgrad, Bulgaria.

National Inter-University Mathematics Olympiad (LIMO) ***(May 2016, 2017 & 2018)***
This is a mathematics championship for Dutch and Belgian university teams.

Skills

Programming skills:
I am comfortable with these languages:
- Python 2/3
- Java, C/C++
- MATLAB/Octave
- HTML/CSS/Javascript/PHP
- Zilog Z80 Assembly

Language skills:
- Fluent: Dutch, English
- High-school level: French

Interactive skills:
I enjoy giving presentations and explaining complicated ideas in a simple manner.