Joshua Moerman

Curriculum Vitae

Personal Information

Name	Joshua Moerman
Email	joshua@cs.rwth-aachen.de
Website	`https://joshuamoerman.nl`
Nationality	Dutch
Living in	Germany

Education

2015 – 2019 **PhD Computer Science**, *Radboud University*, Nijmegen.
Title: Nominal Techniques and Black Box Testing for Automata Learning
Supervisors: Frits Vaandrager, Bas Terwijn, and Alexandra Silva

2013 – 2015 **Master Mathematics**, *Radboud University*, Nijmegen.
Track: Algebra & Topology. Judicium: Summa Cum Laude
Supervisor master thesis: Ieke Moerdijk

2009 – 2013 **Bachelor Computer Science**, *Radboud University*, Nijmegen.
Judicium: Summa Cum Laude

2009 – 2013 **Bachelor Mathematics**, *Radboud University*, Nijmegen.
Judicium: Summa Cum Laude

2003 – 2009 **VWO**, *Christiaan Huygens College*, Eindhoven.
Profile: NT (Natuur & Techniek) met Economie 1, 2

Employment

PostDoc **April 2019 – present**, *RWTH University*, Aachen, DE.

PhD **February 2015 – January 2019**, *Radboud University*, Nijmegen, NL.

Student Assistant **September 2011 – January 2015**, *Radboud University*, Nijmegen, NL.

Research Interests

Formal Verification	Active Automata Learning
PAC Learning	Black-box Testing
Probabilistic Programming	(Co)algebra

Academic Activity

Reviewer for Conferences FoSSaCS 2021, LATA 2021, TACAS 2021, CONCUR 2020, SAFECOMP 2020, ATVA 2019, CONCUR 2019, FM 2019, LICS 2019, LICS 2018, TACAS 2018, CALCO 2017, LATA 2017, POPL 2017, LFCS 2016, and CSL 2015.

Reviewer for Journals	Formal Aspects of Computing, IEEE Transactions on Software Engineering, Journal of Logical and Algebraic Methods, Science of Computer Programming, and Mathematical Problems in Engineering.
Member	ICGI 2021 Program Committee, TACAS 2021 Artefact Committee, and ICFP 2017 Artefact Committee

Publications

Journals

2019	*A (co)algebraic theory of succinct acceptors* - Gerco van Heerdt, Joshua Moerman, Matteo Sammartino, and Alexandra Silva in Journal of Logical and Algebraic Methods in Programming
2018	*n-Complete Test Suites for IOCO* - Petra van den Bos, Ramon Janssen, and Joshua Moerman in Software Quality Journal, Springer

Conferences

CONCUR 2020	*Residual Nominal Automata* - Joshua Moerman and Matteo Sammartino
CSL 2020	*Separation and Renaming in Nominal Sets* - Joshua Moerman and Jurriaan Rot
ICTAC 2018	*Fast Computations on Ordered Nominal Sets* - David Venhoek, Joshua Moerman, and Jurriaan Rot
ICGI 2018	*Learning Product Automata* - Joshua Moerman
ICTSS 2017	*n-Complete Test Suites for IOCO* - Petra van den Bos, Ramon Janssen, and Joshua Moerman
POPL 2017	*Learning Nominal Automata* - Joshua Moerman, Matteo Sammartino, Alexandra Silva, Bartek Klin, and Michał Szynwelski
LATA 2016	*Minimal Separating Sequences for All Pairs of States* - Rick Smetsers, Joshua Moerman, and David N. Jansen
ICFEM 2015	*Applying Automata Learning in Embedded Control Software* - Wouter Smeenk, Joshua Moerman, Frits Vaandrager, and David N. Jansen

Preprints

2020	*Generating Functions for Probabilistic Programs* - Lutz Klinkenberg, Kevin Batz, Benjamin Lucien Kaminski, Joost-Pieter Katoen, Joshua Moerman and Tobias Winkler
2019	*Fast Computations on Ordered Nominal Sets (extended version)* - David Venhoek, Joshua Moerman and Jurriaan Rot

Other Writings

2020	*RERS 2020: Learning, Testing, Fuzzing and Slicing* - Joshua Moerman and Philipp Berger (Report)
2016	*Complementing Model Learning with Mutation-Based Fuzzing* - Rick Smetsers, Joshua Moerman, Mark Janssen, and Sicco Verwer (Report, arXiv)
–	Besides the above papers, I also maintain a blog on my website.

Teaching experience

RWTH Aachen University (2019 – present)

2019, 2020	Supervision of students: Du Hyun Cho (bsc.), Linus Heck (bsc.), Thomas Vogt (bsc.), and Dan-Tuong Le (bsc.)
2019, 2020	Research seminar for students
2019	Introduction to Category Theory. This was my own course (without credits) aimed at PhD students and PostDocs (roughly 30 participants).

Radboud University (2011 – 2018)

2015 – 2018	Supervision of students: Gijs van Cuijk (bsc.), Jeremy Guijt (bsc.), Joep Veldhoven (bsc.), David Venhoek (msc.), Gerco van Heerdt (msc.), and Alexander Fedotov (research internship)
–	In the following courses I was a teaching assistant, meaning that I prepared the exercises, gave exercise classes, and gave lectures:
2014 – 2017	Algoritmen en Datastructuren (2nd year computer science course)
2015, 2017	Complexity Theory (master course, mathematics)
2016	Computability Theory (master course, mathematics)
2015, 2016	Testing Techniques (master course, computer science)
–	In the following courses I assisted as a student assistant, giving exercise classes:
2013	Reflectie (elective course on lambda calculus)
2013	Ringen en Lichamen 2 (2nd year mathematics course)
2012	Symmetrie (2nd year mathematics course)
2012	Inleiding Combinatoriek (1st year computer science course)
2012	Inleiding Wiskunde (1st year computer science course)
2011	Discrete Wiskunde (same course as Inleiding Wiskunde / Combinatoriek)

Research Visits

May 2017, *TU Delft*, visiting Sicco Verwer.

May 2017, *IST Austria*, visiting Petr Novotný.

February 2017 – April 2017, *University College London*, visiting Alexandra Silva.

Augustus 2016, *TU Dortmund*, visiting Falk Howar and Bernhard Steffen.

February 2016 – April 2016, *University College London*, visiting Alexandra Silva.

Summer schools

2019, FoPSS: Nominal Techniques

2018, IPA Fall days

2018, CARI/ICTAC

2018, Heidelberg Laureate Forum

2018, IPA Course on Formal methods

2017, IPA Fall days on System and Software Analysis

2017, Marktoberdorf summer school: Logical Methods for Safety and Security of Software Systems

2016, BSR winter school: Big Software on the Run: Where Software meet Data

2016, IPA Fall days on Communication, Safety and Privacy in IoT

2016, IPA Course on Algorithms and Complexity

2015, TOPDRIM summer school: Topology driven methods for complex systems

Awards and other activities

2017 – 2019 Member of the PhD Council of IPA (Institute for Programming research and Algorithmics)

2017 – 2018 Jury member of the BAPC (Benelux Algorithm Programming Contest)

2016 Coach of Radboud University team at the ACM ICPC world finals, Phuket, Thailand. Award: first to solve problem A

2015 Coach of "That empty teamname", second place at BAPC, gold medal at NWERC (Northwestern Europe regional contest)

2014 Award: Bronze medal (tenth place) at the NWERC

2014 Award: Second place at the BAPC

2012 – 2014 Member of the website committee and the magazine committee of the mathematics student association Desda

2011 Volunteered at the IMO in Amsterdam

2011 Award: Second place at the Global Game jam at the HKU

2010 Nominated for the Dutch Game Awards with the game *Dubble*

2010 – 2014 PR for the double bachelor programme (Mathematics and Computer Science) at the Radboud University

Other professions

2011 – 2018 **Self-employed developer**, *Vadovas*, `https://vadovas.nl/apps/`.
KvK Nijmegen: 53323505. Released the following apps in the Apple Appstore: *Cuboom* (co-created), *Zen Zoom* and *Gravity Beats*.

2010 **Software developer**, *Rodo*.
Released the game *Dubble* in the Apple Appstore.

Programming skills

Haskell, C++, Go, Java, LaTeX, Obj-C, Python, Rust

Languages

Dutch **Mothertongue**
English **Fluent**
German **Basic**

Hobbies

Rock climbing – Music and playing guitar – A little bit of photography