Max Snijders

Curriculum Vitae

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EDUCATION

MSc Theoretical and Mathematical Physics
LMU & TUM   2016 – 2018

In this 2-year master's programme I have taken courses in mathematical physics, pure mathematics, statistics & machine learning. I graduated cum laude in December 2018 with a thesis on algebraic topology under supervision of Prof. Dr. Ulrich Bauer, Prof. Dr. Oliver Junge and Prof. Dr. Konstantin Mischaikow.

BSc Physics
Leiden University   2013 - 2016

Besides the standard physics bachelor's curriculum I have taken extra courses in computer science and mathematics and have finished a 1-year programme in astronomy (cum laude). I completed my BSc cum laude with a thesis (grade: 9.5/10) under supervision of Prof. Dr. Tjerk Oosterkamp.

WORK EXPERIENCE

Founder
M. Snijders Techniek   2012 – Now

With this small company I develop and maintain custom software packages. Amongst the projects done are an augmented reality social networking app and tools used internally by the Dutch Builders' Association.

Visiting Associate
Boston Consulting Group   Summer 2017

At the Boston Consulting Group I worked with an experienced team on an agile transformation for a large multinational. I contributed to several different aspects of this transformation and was scored in the top bracket of starters.

PR Team Leader
Leiden University   2014 – 2016

As student leader of the public relations team of the Leiden Institute of Physics I was responsible for the planning and coordination of the student team during the institute's PR-events, including all open days and special events.

Teaching Assistant
Leiden University   2014 – 2016

During my studies I have taught and assisted several exercise classes. I also gave tutorials covering all subjects to a group of freshmen throughout their first year.

Programmer
Brugman Holding BV   2012 – 2013

At Brugman Holding BV I helped develop several large software packages used by major Dutch companies such as telecom providers and the national railway service.

VOLUNTEERING

Demonstrator & Coordinator
Rino Foundation   2013 – 2016

During my time at Rino I performed and coordinated over 62 physics demonstrations.

Tutor
De Nassau SG   2011 – 2013

At my secondary school I volunteered as a tutor for underprivileged students.

ORGANISATIONS

iGEM Leiden
Leiden Institute of Biology   2016 – 2016

With the Leiden iGEM team I participated in the International Genetically Engineered Machine competition in Boston, USA. With the project we genetically engineered an *E. coli* to detoxify martian soil.

Board of Education Member
Leiden Institute of Physics   2013 – 2016

As the elected year representative I was tasked with overseeing the educational aspects of the institute.

Treasurer and Board Member
Rino Foundation   2014 – 2015

As treasurer and board member of the Rino Foundation I was tasked with co-organising the over a hundred yearly physics demonstrations at schools, companies, university events and television programmes.

P.L.A.N.C.K.S committee member
Foundation F.M.A.   2013 – 2014

P.L.A.N.C.K.S is an annual worldwide theoretical physics competition with accompanying symposium. I was co-responsible for this symposium.

SELECTED COURSES

Data Science & Machine Learning

1. Topology and Geometry for Data Analysis
2. Multivariate Statistics
3. Programming Methods
4. Mathematics and Applications of Machine Learning
5. Statistical Learning

Mathematics

1. Differential Topology
2. Differential Geometry
3. Mathematical Quantum Mechanics
4. Mathematical Structures
5. Analysis
6. Linear Algebra

Physics

1. Advanced Statistical Physics
2. Cosmology
3. General Relativity
4. Physics of Modern Technology
5. Introduction to Solid State Physics
6. Semiconductors and Electron Bands
7. Atomic and Molecular Physics
8. Quantum Mechanics
9. Relativistic Electrodynamics

Interpersonal

1. German B2.1
2. Scientific Communication
3. Public Speaking
4. Academic Entrepreneurship
5. Conflict Management and Resolution

PROGRAMMING LANGUAGES

Extensive Experience

1. Objective-c, c, c++
2. Python
3. Javascript
4. SQL

Moderate Experience

1. Matlab
2. Julia
3. VBA

MACHINE LEARNING PROJECTS

Minerva Spotter App

The Minerva Spotter App is a basic Augmented Reality smartphone application. For a series of photographs tagged with subject information a collection of SURF landmarks was computed on a server that ran an interactive web app for the client to input the needed information. This data was then embedded into an app, which would present an overlay with attached information for recognised photos, labelling all subjects in a photograph.

Master Thesis

In my Master Thesis I am working on the representability of the Cohomology functor. This representability means that in a range of cases we are able to explicitly find a low-dimensional parametrisation for a dataset embedded in high-dimensional space. The techniques studied belong to the field of unsupervised learning. Furthermore, Machine Learning Techniques such as SVMs were applied to persistence diagrams.

Coursework

For my Data Science and Machine Learning courses I have done several small projects, including implementing popular machine learning techniques such as Neural Networks (GD, Adaline, etc.), Support Vector Machines, Bayesian Learners, Cluster Estimators etc.