

# 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

### Data Scientist & Senior Data Scientist

Boston Consulting Group

March 2019 - Now

Worked on supply chain optimization, digital marketing & promo optimization, production & scheduling optimization and predictive maintenance. Promotion at 18 months to Senior Data Scientist, with increased responsibilities in team leadership and project development.

### Founder

M. Snijders Techniek

2012 – Now

With this small company I develop custom software. 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

Supported Agile transformation for Dutch multinational. Performance rated in top bracket for starters.

### Student PR Team Leader

Leiden University

2014 – 2016

Planning and coordination of the student team during the institute's PR-events, including all open days and special events.

### Programmer

Brugman Holding BV

2012 – 2013

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

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### 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
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### Mathematics

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

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

## TOOLS

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I have extensive field experience in:

1. Mathematical Programming
  2. Constraints-based optimisation
  3. Machine learning incl. supervised, unsupervised and reinforcement learning techniques
  4. Python
  5. Objective-c, c, c++
  6. Full-stack web development incl. dashboarding
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## MACHINE LEARNING PROJECTS

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### 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.

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### 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.

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### 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.