

Maarten van der Velde

Applied cognitive scientist & data scientist

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EXPERIENCE

PhD candidate | UNIVERSITY OF GRONINGEN

May 2018 – Present (expected: 2022) | Groningen, The Netherlands

- Thesis: Building blocks for data-driven optimisation of adaptive fact learning.
- Supervisors: Hedderik van Rijn, Jelmer Borst, Florian Sense.

Lecturer / teacher / teaching assistant | UNIVERSITY OF GRONINGEN

Apr 2015 – Present | Groningen, The Netherlands

- Involved in teaching 8 courses at undergraduate and graduate level.
- Gave lectures and assisted participants at the Cognitive Modeling Spring School.
- Was voted AI Teaching Assistant of the Year (2017).

SELECTED PROJECTS

Adaptive fact learning

- Showed that predicting learners' performance on new materials made adaptive learning more efficient and improved retention by over half a grade point. 📄 *
- Demonstrated that an adaptive learning system used during a university course could predict exam performance several weeks in advance. 📄

Cognitive models of memory

- Developed an improved memory model that captures forgetting on timescales from minutes to weeks. 📄
- Demonstrated how individual memory parameters can be inferred from retrieval task data using a novel mapping between ACT-R and the LBA. 📄

Learning analytics

- Analysed a large naturalistic data set (133 thousand students; 115 million trials) to explore how COVID-19 lockdowns affected vocabulary learning. 📄
- Designed and implemented a learning analytics dashboard with mastery assessment used in multiple university courses.

Computational psychiatry

- Created and evaluated novel cognitive models of the effects of depressive rumination on working memory and attention. 📄 📄

* 📄 links to relevant publication

ADDITIONAL ACTIVITIES

Science outreach

- Co-organised the first Groningen edition of the Dutch Brain Olympiad, a national neuroscience competition for secondary school students.
- Gave demonstrations to audiences of all ages at Weekend van de Wetenschap (Weekend of Science).

SKILLS

Cognitive science

Cognitive modelling
Applied cognitive modelling
Individual difference modelling
ACT-R & PRIMs
Accumulator modelling
Bayesian modelling

Measurement

Experiment design
Large-sample data collection
Adaptive learning tasks

Data science

Languages:

R • Python

Methods & tools:

Processing (tidyverse, data.table)
Visualisation (ggplot2, matplotlib)
Statistical modelling (lme4, glmnet)
Communication (LaTeX, RMarkdown, shiny, Jupyter, HTML/JS)
Infrastructure (SQL, git, docker, nginx)

EDUCATION

PhD in Psychology

UNIVERSITY OF GRONINGEN
2018 - Present (expected: 2022)

MSc in Computational Cognitive Science

UNIVERSITY OF GRONINGEN
(formerly Human-Machine Communication)
2015 - 2018 | Cum Laude

BSc in Artificial Intelligence

UNIVERSITY OF GRONINGEN
2012 - 2015 | Cum Laude