

# Dr. Karsten Miermans



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## Profile

### Data scientist & AI engineer

I'm a data scientist with a strong background in quantitative methods (theoretical statistical physics). I am growth-driven and a generalist who loves to interact with people. In my spare time, I enjoy reading great works, electronic music and teaching rationality.

## Experience **Sep'20-now Senior data scientist & AI engineer, res mechanica (Munich)**

Reinforcement learning for customer relations. Results: co-developed AI software for a major bank (Python, TensorFlow, Pandas), built live demo of an AI product from the ground up (Dash, Django), built CI testing framework for core AI codebase, redesigned customer-facing dashboard (Dash, Django), and helped refine product strategy.

## **Feb'16-June'20 PhD, LMU Munich**

Using tailored Markov-chain Monte-Carlo simulations in C++ and statistical analyses & visualizations in Python to elucidate DNA organization. My research helped answer the question of whether bacterial DNA is organized by molecular motors. Results: [two research papers](#) and a simulation framework that is planned to be used for future projects.

## **'19-now Course founder and teacher, Lyzeum 2 e.V.**

Founder of three semi-weekly courses on critical thinking and rationality (for both Gymnasium students as well as adults). See [lyzeum-muenchen.de](http://lyzeum-muenchen.de) for more information.

## **'15-'16 Research project (10 months), Eindhoven Uni of Tech**

Using partial differential equations and Fourier analysis to elucidate mechanics of synaptic growth. Team: R. Kusters, C. Storm, C. Hoogenraad. Result: [research paper](#).

## **'11 Industry internship (6 months), FEI Company, Veldhoven**

MATLAB analyses of electron scattering simulation data to improve imaging sensor capture quality. Team: K.M., Gerald van Hoften.

## Tools

Python, pandas, TensorFlow / Keras, dash, Django, NumPy, scikit-learn, Matplotlib, Jupyter, MySQL & Postgres, regex, C++, git, Google Test, Illustrator, MATLAB.

## Skills

statistics, machine learning, data analysis, data visualization, scientific illustration, software development, unit testing, critical thinking, teaching.

## Teaching & outreach

- '19-now Founder and co-teacher of several critical thinking and rationality courses, Lyzeum 2 e.V.
- '17-'19 Volunteer, soup kitchen for the homeless, Kältebus München
- '17-'19 Speaker graduate school committee (GRK2062); organizer scientific seminars

## Education

- '16-'20 Theoretical Physics (PhD), LMU Munich, Germany
- '11-'16 Applied Physics (M.Sc.), Eindhoven Uni. of Tech., The Netherlands
- '07-'11 Engineering Physics (B.Sc.), Fontys Uni. of Applied Sciences, The Netherlands

## Languages

English, German, Dutch