Dr. Marcel Rothering

Curriculum Vitae

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D-90449 Nürnberg, Germany
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Personal Details

Date of birth	22/10/1987
Place of birth	Vreden
Citizenship	German
Gender	Male

Siemens AG

08/2023 - Present — Applied Research Scientist at *Siemens AG - Technology*

Industrial Machine Learning Operations

- Leading MLOps projects for key customers in the Food & Beverage industry.
- Developing and deploying runtime code for data-driven applications on Siemens Industrial Edge devices.
- Applying expert software development practices (CI/CD, coding standards) in a hands-on data science role.

Product Portfolio Development

- Managing the product portfolio for a cloud-based Generative AI assistant for industrial applications.
- Overseeing the full product lifecycle, including roadmap and release planning, ensuring compliance with Siemens standards.
- Developing visionary yet pragmatic product roadmaps and feasible requirements.
- Leading Generative AI pilot projects with external customers.
- Acting as a key customer liaison, providing AI consultancy and gathering product feedback.

03/2019 - 08/2023 — Data Scientist at *Siemens AG - Digital Industries*

Customer-Facing Data Science

- Recognized as the go-to expert for high-stakes projects with demanding (external) customers, consistently delivering solutions with high success rates and exceptional satisfaction.
- Delivered robust anomaly detection solutions for critical industrial assets (depaneling machines, printers, SMT lines), directly impacting production quality.

- Engineered statistical test reduction for electrical drive end-of-line testing, optimizing manufacturing efficiency and cost.
- Performed end-to-end root cause analysis and process optimization for complex production environments (paint shops, PCB printing, semolina production).

Machine Learning Operations (MLOps)

- Drove a high conversion rate of Proof-of-Concepts (PoCs) to fully operationalized production solutions.
- Developed and deployed monitoring algorithms for critical systems, including energy-efficient model predictive control in buildings and virtual weld testing.
- Spearheaded the successful operationalization of a key false call reduction algorithm, a major value-add for customers.

Product Development & Technical Leadership

- Defined and developed "AI Operations Services" to manage the lifecycle of ML solutions.
- Architected and delivered a Python SDK extension for automated quality monitoring of tabular data.
- Led customer and problem hypothesis validation to ensure product-market fit for new AI solutions.
- Facilitated high-level ideation and scoping workshops for strategic data science initiatives.
- Founded and led a data science journal club on Trustworthy AI and MLOps.
- Supervised and mentored graduate and undergraduate students.

IT Consultant - Synvert

02/2017 - 12/2018   Consultant for Big Data and Data Science at *saracus consulting GmbH*

Tasks

- Spearheaded the growth and development of the company's internal data science team.
- Executed end-to-end data science and data engineering projects for major insurance clients.
- Administered and utilized enterprise-level big data clusters (Cloudera CDH, Hortonworks HDP).
- Led technical workshops for customers on data science, data engineering, and cluster administration.
- Supervised student seminars in collaboration with the *Westfälische Wilhelms-Universität Münster*.

Research Assistant & PhD Student (Academic degree: Dr. rer. nat.)

12/2012 - 12/2016	Research assistant and PhD student for theoretical particle physics at the *Westfälische Wilhelms-Universität Münster*
PhD thesis	*Precise predictions for supersymmetric particle production at the LHC*; *Grade: magna cum laude*
Emphasis	Theoretical particle physics
Supervisor	Prof. Dr. Klasen

Tasks

- program development for resummation predictions for supersymmetric particle production at the Large-Hadron-Collider (`https://resummino.hepforge.org/`)
- tutor for undergraduate courses like mechanics, thermodynamics, electrodynamics and quantum mechanics
- supervision of Bachelor and Master theses
- supervision of an internship project: DAAD RISE (Research Internships in Science and Engineering)

Publications

1. B. Fuks, M. Klasen, M. Rothering, *Soft gluon resummation for associated gluino-gaugino production at the LHC*, JHEP 07:053, 2016.
2. B. Fuks, M. Klasen, David R. Lamprea, M. Rothering, *Revisiting slepton pair production at the Large Hadron Collider*, JHEP 01:168, 2014.
3. B. Fuks, M. Klasen, David R. Lamprea, M. Rothering, *Precision predictions for electroweak superpartner production at hadron colliders with Resummino*, Eur. Phys. J. C 73, 2480, 2013.
4. B. Fuks, M. Klasen, David R. Lamprea, M. Rothering, *Gaugino production in proton-proton collisions at a center-of-mass energy of 8 TeV*, JHEP 10:081, 2012.

Academic Studies

Master's Degree Program in Physics (Academic Degree: M. Sc.)

10/2010 - 12/2012	Master's degree in physics at the Westfälische Wilhelms-Universität Münster; *Grade: 1.2*
Master's thesis	*Resummation predictions for slepton pair-production and implications for dark matter*; *Grade: 1.0*
Emphasis	Theoretical particle physics
Supervisor	Prof. Dr. Klasen
Minor	Economy for natural scientists (innovation management and concepts of strategical analysis)
2012	Two-week international summer school and conference on High Energy Physics: Standard Model and Beyond (ISSCSMB '12)

Bachelor's Degree Program in Physics (Academic Degree: B. Sc.)

10/2007 - 10/2010	Bachelor's degree in physics at the Westfälische Wilhelms-Universität Münster; *Grade: 2.1*
Bachelor's thesis	*Optically induced dynamics in coupled two-level-systems*; *Grade: 1.3*
Emphasis	Theoretical solid state physics
Supervisor	Prof. Dr. Kuhn
Minor	Philosophy (logic and metaphysics)

School Education

8/2003 - 7/2007	Secondary school *Städtisches Heriburg-Gymnasium in Coesfeld*; *Abitur-Grade: 2.7*
8/1998 - 7/2003	Secondary school *Städtisches Gymnasium Nepomucenum in Coesfeld*
8/1994 - 7/1998	Primary school *Pankratius-Grundschule in Gescher*

Language Skills

German	Mother tongue
Englisch	Fluent written and spoken
French	Elementary level

Technical Skills

Programming languages	Python (professional), C/C++ (advanced), R (basics), Java (basics), Scala (basics), Fortran(basics) and Shell (basics)
Software-Tools and Frameworks	Gitlab, Mathematica, Spark, Hive, Sqoop, MlFlow, Keras, Tensorflow, Sklearn, Pandas, Matplotlib and Seaborn, LaTeX, Gnuplot and MS-Office
Ecosystems and Big Data Platforms	Amazon Web Services, Microsoft Azure, Databricks, Siemens Industrial Edge, Cloudera CDH and Hortonworks HDP
Operating Systems	Windows and Unix-based systems

Nürnberg, May 27, 2025