Hendrik **Makait**

DATA & SOFTWARE ENGINEER

Bastianstrasse 13, 13357 Berlin, Germany

(+49) 1522 875 44 38 | hendrik.makait@gmail.com | www.makait.com | hndrkmkt | hndrkmkt

Summary

CS student at Technical University Berlin redesigning message brokers for modern hardware with the Data Engineering Systems group at Hasso Plattner Institute. I have several years of experience in data engineering and building data systems as well as machine learning. This experience is paired with a solid understanding of current research in data systems and causal learning theory through my work as a student researcher.

I am interested in building scalable data products and working at the intersection between machine learning and data systems. With an additional background in entrepreneurship and business management, I do not only solve interesting technical problems but take ownership of the systems I built with the business goals in mind. I am always up for a challenge and looking for a place to grow and learn new skills.

Skills

Programming Languages	Python, SQL, Java, C++, JavaScript, HTML, CSS
Operating Systems	Linux, Mac OS X, UNIX
Systems & Tools	PostgreSQL, Google BigQuery, Apache Flink, Apache Kafka, pandas, NumPy, scikit-learn, Flask, GCP
Languages	German (native), English (fluent), French (basics), Spanish (basics)

Education

Technical University Berlin
Berlin, Germany

M. SC. IN COMPUTER SCIENCE (CURRENT GPA: 1.0)   *2017 - 2020*

- Specializing in scalable data systems and machine learning.
- Working as a student researcher beginning with the second semester with a focus on causal learning and data processing on modern hardware.
- Scholar of the Klaus Murmann Fellowship Program of the Foundation of German Business.

Harvard University
Cambridge, MA, USA

VISITING UNDERGRADUATE STUDENT   *2014*

- Took courses in machine learning, data visualization as well as economics and computation.

Massachusetts Institute of Technology
Cambridge, MA, USA

VISITING UNDERGRADUATE STUDENT   *2014*

- Took a course on entrepreneurship at the MIT Sloan School of Management.

NORDAKADEMIE Hochschule der Wirtschaft
Elmshorn, Germany

B.SC. IN COMPUTER SCIENCE AND BUSINESS MANAGEMENT (GPA: 1.4)   *2011 - 2015*

- Academic part of the co-op program in cooperation with Otto (GmbH & Co. KG).
- Served as Head of the Departmental Student Society for Computer Science and Business Management.
- Received scholarship from the Klaus Murmann Fellowship Program of the Foundation of German Business (SDW).

Master Thesis

Rethinking Message Brokers on Modern Hardware

In this thesis, we propose a message broker architecture that decouples partition handling and storage for improved scaling of storage and load balancing between different storage nodes or brokers. Its protocol ensures message ordering even in the event of retries for parallel messages by utilizing byte-addressable RDMA writes. To ensure message delivery, producers write messages to NVM. Finally, direct transfer of message payloads to or from storage nodes using one-sided RDMA-verbs reduces the CPU overhead on storage nodes and the involvement of brokers. We implement this architecture as part of this thesis and will evaluate its performance against existing solutions such as Apache Kafka.

Work Experience

Hasso Plattner Institute
Potsdam, Germany

STUDENT ASSISTANT AT THE DATA ENGINEERING SYSTEMS GROUP   *05/2019 - PRESENT*

- Continued working with Prof. Rabl as first hire and assisted with creating the new group.
- Designing a novel message broker architecture that leverages remote direct memory access and persistent memory as my master thesis. Poster to be presented at **SIGMOD '20.**
- Designing and executing a benchmark of existing message brokers.
- Researched approaches to causal discovery and how to bring these concepts into real-world systems.

Technical University Berlin
Berlin, Germany

Sᴜᴛᴜᴅᴇᴏᴛ Rᴇᴀᴄᴇᴀᴛᴄʜ Aᴀᴀɪᴀᴛᴀᴏᴛ ᴀᴛ ᴛʜᴇ Dᴀᴛᴀʟᴀᴀᴇ ᴀᴏᴅ Iᴏᴜᴏᴀᴏᴀᴛɪᴏᴏ Mᴀᴏᴀᴀᴇᴏᴇᴏᴛ Gᴀᴏᴜᴘ
Student Research Assistant at the Database and Information Management Group
04/2018 - 04/2019

- Analyzed the robustness of game-theoretic approaches to inferring influence between senators from their voting behavior and showed high instability of learned parameters with respect to hyperparameters and minor manipulation of the data.
- Deeply investigated concepts of causality and how to bring causal discovery mechanisms to data systems.

Project A Ventures
Berlin, Germany

Data Engineer
06/2015 - 09/2017

- Lead engineer on a three months project analyzing the balance of a 500+MM USD marketplace. Built data pipelining, a dashboard solution as well as marketing automation based on our findings. This has helped to increase the revenue of the company and intelligently allocate marketing budgets.
- Designed, implemented and extended data warehouses, large data processing pipelines and data products built on top of those.
- Analyzed and predicted KPIs by using customer and marketing data.
- Interviewed and educated new data teams for the ventures.

owlhub. UG
Hamburg, Germany

Co-Founder
01/2014 - 09/2014

- Co-founded a stock analysis network for the everyday investor.
- Main responsibilities were around Product, Data and Marketing. Developed the web application in Ruby on Rails.
- Developed owlhub. Insights dashboard as part of Harvard CS 171 Visualization.

Otto (GmbH & Co. KG)
Hamburg, Germany

Co-op Student in Computer Science and Business Management
10/2011 - 03/2015

- Performed the practical part of the integrated degree program in the form of several internships within Otto Group companies.
- Internships in the areas of project and product management, software development, venture capital and data science.
- Two internships highlighted below:

otto group
Hamburg, Germany

Data Science Intern in Business Intelligence
11/2014 - 03/2015

- Wrote bachelor thesis on "Evaluation of Methods for Identifying Brand Names in Search Queries in E-Commerce". Researched methods and helpful metrics for the identification task. Extended existing and implementing new metrics, methods and machine learning algorithms and thereby decreased the run-time of the existing approach by 75 %.
- Test-driven and agile development in Python using various third-party libraries.

Blue Yonder GmbH
Hamburg, Germany

Data Science Intern
06/2014 - 08/2014

- Data science using Python combined with proprietary and open-source libraries.
- Performed initial data exploration and preparatory model development for a customer project on dynamic pricing in the travel industry. This analysis was the foundation of subsequent negotiations and project scope definitions.
- Supported the creation of a tutorial on data science for external customers.

YMCA Youth Center Lemsahl
Hamburg, Germany

Mandatory Civilian Service
10/2010 - 05/2011

- Led events, youth groups, and a summer camp together with teams of volunteers and regular staff.
- Supervised and supported volunteers.
- Supported day-to-day operations of the center and designed web and print media.

Publications

| 2020 | **Rethinking Message Brokers on RDMA and NVM,** Proceedings of 2020 International Conference on Management of Data (SIGMOD '20) | *Portland, OR, USA* |

Honors

| 2013 - PRESENT | **Klaus Murmann Fellowship Program,** Foundation of German Business (SDW) | |

References are available upon request.