Sven Meinhardt

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Personal Summary:

After working in mathematical research at top universities for 15 years, I have started a new career in the fast growing field of Artificial Intelligence.
In recent years I've been working in the recruitment sector as a data scientist, machine learning engineer and backend engineer at Indeed and Indeed Flex to match employers and job seekers. I use my data insights as well as my product and technical knowledge to advice and to influence my team and the management to build better products in order to deliver the best experience for both employers and job seekers.
Being a quick learner with a passion for details enables me to adopt new technolgies and concepts easily. Having a deep background in mathematics and statistics provides me with the right skill set to find and to understand complex connections and patterns hidden in the data.

Education:

2005-2008: PhD in Mathematics with the overall grade 'magna cum laude' at the Rheinische Friedrich–Wilhelms University in Bonn

1999-2005: Diploma in Mathematics and a Pre-Diploma in Physics with an overall grade of 1.0 at the Humboldt University in Berlin

1992-1998: Abitur (A-Level equivalents) with an overall grade of 1.0 at the Gottfried–Arnold Gymnasium (Grammar School) in Perleberg

Employment:

Apr 2023 - present: Senior Data Scientist and Backend Engineer at Indeed

Apr 2021 - Mar 2023: Senior Machine Learning and Backend Engineer at Indeed Flex

Jan 2021 - Mar 2021: Senior Data Scientist at Walgreens Boots Alliance

Oct 2016 - May 2020: Research Associate at the University of Sheffield

Jan 2013 - Sep 2016: Postdoc at the Bergische University in Wuppertal

Sep 2012 - Dec 2012: Postdoc at the Hausdorff Institute for Mathematics in Bonn

Oct 2010 - Aug 2012: Postdoc at the Rheinische Friedrich–Wilhelms University in Bonn

Apr 2009 - Sep 2010: Postdoc at the University of Oxford

May 2008 - Mar 2009: Postdoc at the Rheinische Friedrich–Wilhelms University in Bonn

IT Skills:

- **Programming Languages:** Python, Ruby, JavaScript, Solidity
- **Machine Learning:** TensorFlow, Scikit Learn, Keras
- **Data Science:** Pandas, Numpy, Snowflake, PostgreSQL, Elasticsearch
- **Backend Development:** Flask, Ruby on Rails
- **Frontend Development:** HTML, CSS, React
- **DevOps:** AWS, GCP, Docker, Kubernetes

Projects:

- **DT-Invariants for Quivers:** I've implemented a Python library to compute (motivic) Donaldson–Thomas invariants of quivers. These numbers or polynomials play an important role in the representation theory of quivers and are also relevant to string theory. The manual computation of those invariants is quite tedious. This library removes the pain by returning the results within seconds. The library is available at https://github.com/s-meinhardt/DT-invariants or as a PyPi package https://pypi.org/project/dt-invariants/.
- **Skin Cancer Classifier:** This project is based on part 3 of the SIC 2018: Skin Lesion Analysis Towards Melanoma Detection challenge aiming to classify skin cancer pictures into 7 classes. The training data consists of 10,000 pictures and is also available on Kaggle as Skin Cancer Mnist: HAM 10000 dataset. The model uses a pretrained ResNet152V2 network which has been fine-tuned on a TPU using Google Colab. The model is deployed via a TensorFlow Serving Docker container running on my private server. To interact with the model, I have also containerized a simple Flask web server which is available at www.meinhardt.ai:5100/detector. In autumn 2020 I have trained an upgraded version based on the SIC 2019 Skin Lesion Analysis Towards Melanoma Detection challenge. The training dataset consists of 25,331 pictures of 8 different classes. The upgraded model is an ensemble of two DenseNet121 and one EfficientNetB2.
- **Language Translator:** This project consists of six Google Transformer models to translate between English, French and German. All models were built and trained from scratch using two GPUs. I used the WMT19:de-en, the WMT19:fr-de and the WMT15:fr-en datasets to train the models. In addition, the project includes a simple language detector to choose the right Transformer model based on the input language. All models are deployed via a TensorFlow Serving Docker container running on my private server. To interact with the model, I have also containerized a simple Flask web server which is available at www.meinhardt.ai:5000.
- **ERC20 Token ICO:** This project was inspired by a tutorial and provides an ICO for the 'StarDucks' ERC20 token. In addition to the standard ERC20 token implementation it adds a KYC whitelisting smart contract to control the group of token buyers. Both contracts were deployed on the Ropsten test network. The front end has been built using React and is available on Netlify at https://starducks.netlify.app. The source code is available on GitHub at https://github.com/s-meinhardt/starducks.

Personal:

- Speaks German (native) and English (fluent)

Certificates:

- Certificate Kubernetes Application Developer (CKAD). Earned at 06/09/2021
- TensorFlow Developer Certificate by TensorFlow. Earned at 05/26/2020
- AI for Medicine on Coursera. Certificate earned at 09/20/2020
- Natural Language Processing on Coursera. Certificate earned at 09/29/2020
- Machine Learning by Stanford University on Coursera. Certificate earned at 03/14/2020
- Machine Learning for Trading by Google Cloud & New York Institute of Finance on Coursera. Certificate earned at 06/09/2020
- Advanced Machine Learning with TensorFlow on Google Cloud Platform by Google Cloud on Coursera. Certificate earned at 04/28/2020
- Machine Learning with TensorFlow on Google Cloud Platform by Google Cloud on Coursera. Certificate earned at 04/19/2020
- TensorFlow in Practice by deeplearning.ai on Coursera. Certificate earned at 04/03/2020
- Deep Learning by deeplearning.ai on Coursera. Certificate earned at 04/01/2020
- Data and Deployment by deeplearning.ai on Coursera. Certificate earned at 05/02/2020
- IBM AI Engineering by IBM on Coursera. Certificate earned at 04/10/2020

Publication List:

- *Cohomological Donaldson–Thomas theory of a quiver with potential and quantum enveloping algebras* (with B. Davison), Inventiones Mathematicae (2020), vol. 221, 777-871, https://doi.org/10.1007/s00222-020-00961-y.
- *On motivic vanishing cycles of critical loci* (with V. Bussi and D. Joyce), Journal of Algebraic Geometry (2019), vol. 28 no. 3, 405–438, https://doi.org/10.1090/jag/737.
- *Donaldson-Thomas invariants versus intersection cohomology of quiver moduli* (with M. Reineke), J. für die Reine und Angew. Math. (2019), vol. 754, 143-178, https://doi.org/10.1515/crelle-2017-0010.
- *The motivic Donaldson–Thomas invariants of (-2)-curves* (with B. Davison), Algebra & Number Theory (2017), vol. 11 no. 6, 1243-1286, https://doi.org/10.2140/ant.2017.11.1243.
- *An Introduction to (Motivic) Donaldson-Thomas theory,* Confluentes Mathematici (2017), vol. 9 no. 2, 101-158, https://dx.doi.org/10.5802/cml.43.
- *Motivic DT-invariants for the one loop quiver with potential* (with B. Davison), Geometry & Topology (2015), vol. 19, 2535-2555, https://doi.org/10.2140/gt.2015.19.2535.
- *Quotient categories, stability conditions, and birational geometry* (with H. Partsch), Geometriae Dedicata (2014), vol. 173 no. 1, 365-392, https://dx.doi.org/10.1007/s10711-013-9947-x.
- *Stability conditions on generic complex tori,* International Journal of Mathematics (2012), vol. 23 no. 5, 1250035-1250052, https://doi.org/10.1142/S0129167X12500358.