

# Dr. rer. nat. Sebastian Lapuschkin *(né Bach)*

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## Short Bio

Sebastian Lapuschkin received the Ph.D. degree with distinction from the Berlin Institute of Technology in 2018 for his pioneering contributions to the field of Explainable Artificial Intelligence (XAI) and interpretable machine learning. From 2007 to 2013 he studied computer science (B. Sc. and M. Sc.) at the Berlin Institute of Technology, with a focus on software engineering and machine learning.

Since 2021, he is the Head of the Explainable Artificial Intelligence at Fraunhofer Heinrich Hertz Institute (HHI) in Berlin.

He is the recipient of multiple awards, including the Hugo-Geiger-Prize for outstanding doctoral achievement and the 2020 Pattern Recognition Best Paper Award.

His work is focused on pushing the boundaries of XAI, e.g. for achieving human-understandable explanations, and towards the effective utilization of interpretable feedback for the improvement of machine learning systems and data. Further research interests include efficient machine learning and data analysis, as well as data and algorithm visualization.

## Professional Experience

### Fraunhofer Heinrich-Hertz-Institute

#### Head of Explainable Artificial Intelligence

Research Group Leadership and direction of XAI research  
(current number of staff: 2 PostDocs, 11 PhD researchers & 11 student research assistants).

BERLIN, GERMANY  
Jan '21 – today

#### Tenured Researcher

PostDoc research position in the Machine Learning Group at Fraunhofer HHI.

Jan '19 – Dec '20

#### Research Associate

Founding member of the Machine Learning Group at Fraunhofer HHI.

Oct '14 – Dec '18

### Berlin Institute of Technology

#### Research Associate

Supervision by Prof. Dr. Klaus-Robert Müller and Prof. Dr. Alexander Binder.

BERLIN, GERMANY  
Sep '13 – Sep '14

#### Student Research- & Teaching Assistant

Research assistant to Prof. Dr. Alexander Binder at the machine learning group at TU Berlin.

Oct '11 – Aug '13

Teaching assistant to Prof. Dr. Klaus-Robert Müller, Prof. Dr. Dr. Franz Király, Dr. Irene Dowding (née Winkler) and Dr. Daniel Bartz.

#### Student Teaching Assistant

Teaching assistant to Prof. Dr. Marc Alexa, Prof. Dr. Odej Kao and Prof. Dr. Oliver Brock.

Oct '09 – Sep '11

## Education

### Berlin Institute of Technology

#### PhD in Machine Learning (with distinction / “summa cum laude”)

Thesis: “Opening the machine learning black box with Layer-wise Relevance Propagation”

Supervision headed by Prof. Dr. Klaus-Robert Müller.

BERLIN, GERMANY  
2013 – 2018

#### Master of Science in Computer Science

Focus on machine learning, computer vision and large scale data analysis.

2010 – 2013

#### Bachelor of Science in Computer Science

Focus on algorithms and software development

2007 – 2010

### Deutschhaus-Gymnasium

#### Abitur (pre-university secondary education)

WÜRZBURG, GERMANY  
1998 – 2007

## Teaching

Teaching and teaching support of 11 university courses since 2010

## Supervision & Guidance

Collaboration with and supervision of 2 PostDocs, 19 PhD Students,  
17 Master's Students, 1 Bachelor's Student and 4 Guest Researchers since 2017

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## Third-Party Funded Research Projects

6 third-party funded research projects acquired and managed since 2018

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## Awards

**Stanford Top 2% Scientist Worldwide 2022 (2023)**  
**Best Short Paper Award (2023)**  
**Stanford Top 2% Scientist Worldwide 2021 (2022)**  
**Pattern Recognition Best Paper Award and Pattern Recognition Medal (2020)**  
**Hugo-Geiger-Prize (2019, 1st place)**  
**Freunde des HHI (2019)**  
**ERCIM (2019, finalist)**  
**Best Paper Award (2016)**

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## Patents

**Method and System for Simulating an Optical Image of a Photonic and/or Electronic Device**  
**Pruning and/or Quantizing Machine Learning Predictors**  
**Relevance Score Assignment for Artificial Neural Networks**

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## Talks & Lectures

Over 30 invited talks and individual lectures held since 2017.  
Excludes teaching activities and internal/confidential events.

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## Publications

### Summary of Scientific Impact

	All	Since 2018
# Publications	61	46
# Citations	12400	11947
h-index	29	28
i10-index	42	42

per Google Scholar, retrieved on November 7<sup>th</sup>, 2023.

**23 Journal Papers** in eg. Nature Machine Intelligence, Nature Communications, Information Fusion,  
Pattern Recognition, Scientific Reports, Journal of Machine Learning Research and others.

**23 Conference Papers** in Proc. of eg. MICCAI, CVPR, NeurIPS, ICIP, ICML, ICPR and others.

**4 Book Chapters** published.

**11 Preprints** published.