

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

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## Short Bio

Sebastian Lapuschkin is the Head of the Explainable Artificial Intelligence research group at Fraunhofer Heinrich Hertz Institute (HHI) in Berlin.

He received his 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.

Sebastian is the recipient of multiple awards, in-

cluding 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 and efficient 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, 16 PhD researchers, 30+ student research assistants & 3 Technical Staff).

#### Tenured Researcher

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

#### Research Associate

Founding member of the Machine Learning Group at Fraunhofer HHI.

### Berlin Institute of Technology

#### Research Associate

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

#### Student Research- & Teaching Assistant

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

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.

BERLIN, GERMANY

Jan '21 – today

Jan '19 – Dec '20

Oct '14 – Dec '18

BERLIN, GERMANY

Sep '13 – Sep '14

Oct '11 – Aug '13

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.

#### Master of Science in Computer Science

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

#### Bachelor of Science in Computer Science

Focus on algorithms and software development

### Deutschhaus-Gymnasium

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

BERLIN, GERMANY

2013 – 2018

2010 – 2013

2007 – 2010

WÜRZBURG, GERMANY

1998 – 2007

## Teaching

Teaching of and teaching support for 18 university courses since 2009

## Supervision & Guidance

Collaboration with and supervision of 3 (Senior) Technical Staff, 2 PostDocs, 23 PhD Students, 33 Master's Students, 2 Bachelor's Students and 6 Guest Researchers since 2017

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## Third-Party Funded Research Projects

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

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## Awards

**Stanford Top 2% Scientist Worldwide**

**Best Short Paper Award (2023)**

**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

**Analyzing an Inference of a Machine Learning Predictor**

**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 334 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 2019
# Publications	78	62
# Citations	16763	15752
h-index	33	32
i10-index	47	46

per Google Scholar, retrieved on November 27<sup>th</sup>, 2024.

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

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

**8 Books and Book Chapters** published.

**12 Preprints** published.