PROF. DR. ZEYNEP AKATA

University of Tübingen ◇ Maria-von-Linden Str. 6 ◇ 72076 Tübingen ◇ Germany
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RESEARCH EXPERIENCE

University of Tübingen October 2019 - Present
Professor of Computer Science, Cluster of Excellence Machine Learning *Tübingen, Germany*

· I am leading the research group Explainable Machine Learning (EML), integrated within Cluster of Excellence Machine Learning. Our research focuses on fundamentals of explainable deep learning, with applications to natural language and computer vision. Topics include: Data Efficient Deep Learning, Multi-Modal Deep Learning, Generative and Unsupervised Deep Learning and Explainable AI.

Max Planck Institute for Intelligent Systems (MPI-IS) December 2020 - Present
Senior Researcher *Tübingen, Germany*

· Within the Empirical Inference group lead by Prof. Dr. Bernhard Schölkopf, we do medical imaging research on modeling causality and uncertainty using vision and language.

Max Planck Institute for Informatics (MPII) March 2017 - June 2023
Senior Group Leader *Saarbrucken, Germany*

· Within the Multimodal Deep Learning group integrated into the Computer Vision and Machine Learning group of Prof. Bernt Schiele, we did research on (generalized) zero- and few-shot learning.

University of Amsterdam (UvA) March 2017 - September 2019
Assistant Professor, Scientific Manager of UvA-Bosch Delta Lab *Amsterdam, The Netherlands*

· I was a tenure track assistant professor at UvA and the scientific manager of the UvA-Bosch Delta Lab funded by Bosch Center for AI (BCAI). The research focus was on fundamentals of deep learning, with applications to automotive and computer vision.

University of California Berkeley October 2016 - March 2017
Post-Doctoral Researcher (Visiting Scholar) with Prof. Dr. Trevor Darrell *Berkeley, USA*

· Within the Berkeley AI Research, we proposed machine learning models applied to computer vision tasks that focus on the discriminating properties of the visible object, jointly predicting a class label, and explaining why the predicted label is appropriate for the image.

Max Planck Institute for Informatics (MPII) March 2014 - March 2017
Post-Doctoral Researcher with Prof. Dr. Bernt Schiele *Saarbruecken, Germany*

· Within the Computer Vision and Machine Learning group, we combined vision and language for zero-shot leaning, where the task is to recognize objects without having a labeled visual sample of them, as well as deep generative modeling where the aim is to generate novel examples of images conditioned by side-information such as text or attributes.

INRIA Rhone Alpes January 2011 - January 2014
PhD Student with Prof. Dr. Cordelia Schmid *Grenoble, France*

· Topic: Large Scale Image Classification and Zero-Shot Learning

Fraunhofer IAIS April 2010 - November 2010
MSc Student with Prof. Dr. Christian Bauckhage *Sankt Augustin, Germany*

· Topic: Non-Negative Matrix Factorization for Image Classification

EDUCATION

Collége des Ecoles Doctorales (CED) de l'Université de Grenoble, France 2011-2014
PhD in Computer Science
RWTH Aachen, Germany 2008-2010
MSc in Media Informatics
Trakya University, Turkey 2004-2008
BSc in Computer Engineering

FUNDING ACQUIRED

Explainable Machine Learning Oct 2023
Funding granted by Alfried Krupp von Bohlen und Halbach foundation (PI) €1M
Certification and Foundations of Safe Machine Learning Systems in Healthcare Oct 2021
Funding granted by Carl Zeiss foundation, consortium grant (co-PI) €300K (total: 5M)
Tübingen AI Center Agile Research Funds 2021 and 2022
Funding granted by BMBF (PI) €300K
International Max Planck Research School of Intelligent Systems 2020 and 2021
Funding granted by Max Planck Society (PI) €150K
Mini graduate school: Compositionality in Minds and Machines January 2021
Funding granted by DFG, Excellence Cluster, consortium grant (lead PI) €150K (total: 700K)
SFB-1233 Robust Vision December 2020
Funding granted by BMBF, consortium grant (co-PI) €300K (total: 13M)
ERC Starting Grant 2019
Funding granted by European Research Council, individual grant (lead PI) €1.5 M
Lise Meitner Award For Excellent Women in Computer Science 2014 - 2016
Funding granted by Max Planck Institute for Informatics, individual grant €100K
DARPA BAA 16-53, Explainable Artificial Intelligence (XAI) grant 2017 - 2021
Funding granted by DARPA as a sub-PI of UC-Berkeley $ 440K

TEACHING

Introduction to Machine Learning BSc, University of Tübingen, 242 students SS2023
Course on Special Topics on Explainable Machine Learning MSc, Uni Tübingen WS2021-2022
Course on Learning with Limited Labels MSc, University of Tübingen WS2021-2022
Course on Special Topics on Explainable Machine Learning MSc, Uni Tübingen WS2020-2021
Introduction to Machine Learning BSc of AI, University of Amsterdam, 236 students 2018-2019
Introduction to Machine Learning BSc of AI, University of Amsterdam, 154 students 2017-2018
Project AI, 1 and 2 Project Coordinator and Assessor, University of Amsterdam 2017, 2018
High Level Computer Vision Teaching Assistant, MPI for Informatics 2014

SUPERVISION AND MENTORING

Post-doctoral researcher Stephan Alaniz 2022–
Post-doctoral researcher Almut Sophia Koepke 2020–
Post-doctoral researcher Massimiliano Mancini 2020-2023
Post-doctoral researcher Yanbei Chen 2020-2022
Post-doctoral researcher Yongqin Xian 2020-2021
PhD student Luca Eyring 2023–
PhD student Yiran Huang 2023–
PhD student Maja Pantic 2023–
PhD student Lukas Thede 2023–
PhD student Leander Girrbach 2023–
PhD student Anders Christensen 2022–

PhD student Shyamgopal Karthik 2021–
PhD student Jae Myung Kim 2021–
PhD student Karsten Roth 2021–
PhD student Otniel Bogdan Mercea 2021–
PhD student Uddeshya Uppadhyay 2021–
PhD student Thomas Hummel 2020–
PhD student Leonard Salewski 2020–
PhD student Stephan Alaniz 2017-2022
PhD student (MPI) Yongqin Xian 2016-2020
PhD student (UvA) Marco Federici 2018-2019
PhD student (UC Berkeley) Rodolfo Corona Rodriguez 2018-2019
PhD student (UvA) Victor Garcia Satorras 2018-2019
MSc Theses Jessica Bader, Zafir Stajonowski, Stefan Fauth, Ferjad Naeem, Robin Schmidt, Julian Statsny, Lukas Riesch, Andrei Neculai, Samantha Tureski, Nour Karessli, Yongqin Xian, Henry Lin, Edgar Schönfeld, Govert Verkes 2015-Now
BSc Theses Laurens Witkamp, Stefan Wezel 2018-2020

REVIEWING AND ORGANIZATION

Associate Editor in IEEE Transactions on Pattern Analysis and Machine Intelligence 2020–now
Special Issue Lead Editor in International Journal of Computer Vision (IJCV) 2020-2021
Associate Editor in Pattern Recognition Journal, Elsevier 2018-2020

Program Chair European Conference of Computer Vision ECCV 2026
Program Chair IEEE Conference on Computer Vision and Pattern Recognition CVPR 2024
General Chair German Conference of Pattern Recognition GCPR 2020
Area Chair WACV 2016, IJCAI 2018, ECCV 2018-2022, CVPR 2019-2023, ICCV 2019-2023, ICML 2020-2022, ICLR 2020-2023
Reviewer in Journals TPAMI 2015-2017; IJCV 2015-2017
Reviewer in Conferences ICCV 2015-2017; NIPS 2016-2018; ACCV 2016; ECCV 2016; AISTATS 2017; CVPR 2015-2018; AAAI 2018; ICLR 2018, ICML 2018-2019; EMNLP 2018, NeurIPS 2020
Reviewer of International Grants NSERC Discovery, ERC Grants 2018–now

Organization Committee Explainable Machine learning Workshop Tübingen 2023
Organization Committee Multimodal Learning and Applications Workshop (MULA) CVPR 2022
Organization Committee ImageNet: Past, Present and Future Workshop NeurIPS 2021
Organization Committee Natural XAI: Natural Language Explanations Tutorial ICML 2021
Organization Committee Sketching for Human Expressivity (SHE) Workshop ICCV 2021
Organization Committee Human in the Loop Learning (HILL) Workshop ICML 2021
Organization Committee Uncertainty and Robustness in Deep Learning Workshop CVPR 2019
Organization Committee Interpretability in Machine Learning Tutorial ICCV 2019
Organization Committee Visual Learning With Limited Labeled Data Workshop ICCV 2019
Organization Committee Women in Computer Vision Workshop ECCV 2018
Organization Committee Tutorial on Zero-Shot Learning CVPR 2017
Organization Committee Tutorial on Embeddings and Metric Learning GCPR 2016
Organization Committee Gender Diversity Awareness Training, Saarland University 2015

MANAGEMENT DUTIES AND COMMITTEE MEMBERSHIPS

Steering Committee Member Cluster of Excellence Machine Learning, Tübingen 2021-2023 **W3, ML in the Sciences, Search Committee**, TüAI Center, University of Tübingen 2023
W3, ML Technology Transfer, Search Committee, TüAI Center, University of Tübingen 2023
W1, Decision Making, Habilitation Committee University of Tübingen 2023
W1, Computational Neuroscience, Habilitation Committee University of Tübingen 2022

W3 for Media Informatics, Search Committee, University of Tübingen 2023
W3 for Autonomus Learning, Search Committee, University of Tübingen 2022
W3 for Real Virtual Humans, Search Committee, University of Tübingen 2021
Scientific Manager UvA-Bosch Delta Lab, Amsterdam, The Netherlands 2017 - 2019
Member of the board SIG-AI, BUSAKI, The Netherlands 2017 - 2019
Member of the board Visible Trajectories Project, BSc of AI Program 2017 - 2019

AWARDS

Alfried Krupp Award for Young Professors Alfried Krupp Foundation, 2023
ECVA Young Researcher Award European Computer Vision Association (ECVA), 2022
German Pattern Recognition Award DAGM, 2021
ELLIS Fellowship ELLIS Society, 2019
ERC Starting Grant European Commission, 2019
Young Researcher Award Werner-von-Siemens-Ring Foundation, 2019
Best Reviewer Award CVPR and ECCV, 2016
Lise Meitner Award for Excellent Women in Computer Science MPII, March 2014
PhD CIFRE Scholarship ANRT France, January 2011
Best Poster Award INRIA CVML Summer School, July 2010
MSc Scholarship TUBITAK Turkey, September 2008
Department Rank 1 in BSc Graduation Computer Science Department, Turkey, 2008
Faculty Rank 1 in BSc Graduation Faculty of Engineering and Architecture, Turkey, 2008

PATENTS

Label-Embedding View of Attribute-Based Recognition, US Patent 20,140,376,804 2014
Zeynep Akata, Florent Perronnin, Zaid Harchaoui, Cordelia Schmid
Adapting a base classifier to novel classes , US Patent App. 16/903,358 2019
Xiahan Shi, Martin Schiegg, Leonard Salewski, Max Welling, **Zeynep Akata**
Control of a physical system based on inferred state , US Patent App. 16/804,820 2019
Victor Garcia Satorras, Max Welling, Volker Fischer, **Zeynep Akata**

SELECTED PUBLICATIONS

According to Google Scholar (`https://scholar.google.com/citations?user=jQl9RtkAAAAJ&hl=en`), my total number of citations is 17380 and my h-index is 38 (as of 13 July 2023). Below I proivde my ten most influential papers (based on the number of citations provided with bold numbers, remvoing the conference papers if a journal version has been published and received more citations), and 20 further papers (papers published with the students and post doctoral researchers I have been supervising). Note that in the field of computer vision and machine learning, refereed conference publications in the top conferences (IEEE CVPR, ECCV, ICML, NIPS/NeurIPS) are on equal footing with the highest ranked refereed journal (TPAMI, impact factor=17.861). The acceptance rates of these conferences vary between 20% and 30%. However, impact factors for these conferences are not available. According to Google Scholar ranking in the entire Engineering and Computer Science fields, the IEEE CVPR conference ranks the 1st conference with an h5 index of 356.

a. 10 most influential (highest cited) publications

1. **Generative Adversarial Text to Image Synthesis** 2016
   International Conference on Machine Learning (ICML) **3257**
   Scott Reed, **Zeynep Akata**, Xinchen Yan, Lajanugen Logeswaran, Bernt Schiele, Honglak Lee

2. **Zero-Shot Learning: A Comprehensive Evaluation of the Good, the Bad and the Ugly**
   IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2019 **1334**
   Yongqin Xian, Christoph Lampert, Bernt Schiele, **Zeynep Akata**

3. **Evaluation of Output Embeddings for Fine-Grained Image Classification** 2015
IEEE Computer Vision and Pattern Recognition (CVPR) **1089**
Zeynep Akata, Scott Reed, Daniel Walter, Honglak Lee, Bernt Schiele

4. **Feature Generating Networks for Zero-Shot Learning** 2018
IEEE Computer Vision and Pattern Recognition (CVPR) **875**
Yongqin Xian, Tobias Lorenz, Bernt Schiele, **Zeynep Akata**

5. **Learning Deep Representations of Fine-Grained Visual Descriptions** 2016
IEEE Computer Vision and Pattern Recognition (CVPR) **862**
Scott Reed, **Zeynep Akata**, Honglak Lee, Bernt Schiele

6. **Label Embedding for Attribute Based Classification** 2013
IEEE Computer Vision and Pattern Recognition (CVPR) **782**
Zeynep Akata, Florent Perronnin, Zaid Harchaoui, Cordelia Schmid

7. **Learning What and Where to Draw** 2016
Neural Information Processing Systems (NIPS) **758**
Scott Reed, **Zeynep Akata**, Santosh Mohan, Samuel Tenka, Bernt Schiele, Honglak Lee

8. **Generating Visual Explanations** 2016
European Conference of Computer Vision (ECCV) **637**
Lisa Anne Hendricks, **Zeynep Akata**, Marcus Rohrbach, Jeff Donahue, Bernt Schiele, Trevor Darrell

9. **Generalized Zero- and Few-Shot Learning via Aligned Variational Autoencoders** 2019
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) **550**
Edgar Schoenfeld, Sayna Ebrahimi, Samarth Sinha, Trevor Darrell, **Zeynep Akata**

10. **Multimodal explanations: Justifying decisions and pointing to the evidence** 2019
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) **462**
Dong Huk Park, Lisa Hendricks, **Zeynep Akata**, Bernt Schiele, Trevor Darrell, Marcus Rohrbach

b. 20 further publications with supervised junior researchers

1. **Audio-visual Generalised Zero-shot Learning with Cross-modal Attention and Language.** 2021
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Otniel Mercea, Lukas Riesch, Sophia Koepke, **Zeynep Akata**

2. **Integrating Language Guidance into Vision-based Deep Metric Learning.** 2022
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Karsten Roth, Oriol Vinyals, **Zeynep Akata**

3. **Non-isotropy Regularization for Proxy-based Deep Metric Learning.** 2022
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Karsten Roth, Oriol Vinyals, **Zeynep Akata**

4. **Knowledge Guided Simple Primitives for Open World Compositional Zero-Shot Learning** 2022
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Shyamgopal Karthik, Massimiliano Mancini, **Zeynep Akata**

5. **Semi-Supervised and Unsupervised Deep Visual Learning: A Survey** 2022
Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
Yanbei Chen, Massimiliano Mancini, Xiatian Zhu, **Zeynep Akata**

6. **Robustness via Uncertainty-aware Cycle Consistency.** 2021
Neural Information Processing Systems, NeurIPS 2021
Uddeshya Upadhyay, Yanbei Chen, **Zeynep Akata**

7. **Fine-Grained Zero-Shot Learning with DNA as Side Information.** 2021
Neural Information Processing Systems (NeurIPS)
Sarkhan Badirli, **Zeynep Akata**, George Mohler, Christine Picard, Murat Dundar

8. **Learning Graph Embeddings for Compositional Zero-shot Learning** 2021
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Mohammad Ferjad Naeem, Yongqin Xian, Federico Tombari, **Zeynep Akata**

9. **Open World Compositional Zero-Shot Learning** 2021
IEEE Conference on Computer Vision and Pattern Recognition(CVPR)
Massimiliano Mancini, Mohammad Ferjad Naeem, Yongqin Xian, **Zeynep Akata**

10. **Distilling Audio-Visual Knowledge by Compositional Contrastive Learning** 2021
IEEE Conference on Computer Vision and Pattern Recognition(CVPR)
Yanbei Chen, Yongqin Xian, Almut Sophia Koepke, **Zeynep Akata**

11. **Learning Decision Trees Recurrently Through Communication** 2021
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Stephan Alaniz, Diego Marcos, Bernt Schiele, **Zeynep Akata**

12. **Attribute Prototype Network for Zero-Shot Learning** 2020
Neural Information Processing Systems (NeurIPS)
Wenjia Xu, Yongqin Xian, Jiuniu Wang, Bernt Schiele, **Zeynep Akata**

13. **Learning Robust Representations via Multi-View Information Bottleneck** 2020
International Conference on Learning Representations (ICLR)
Marco Federici, Anjan Dutta, Patrick Forre, Nate Kushman, **Zeynep Akata**

14. **Semantic Projection Network for Zero and Few-Label Semantic Segmentation** 2019
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Yongqin Xian, Subharata Choudhury, Yang He, Bernt Schiele, **Zeynep Akata**

15. **f-VAEGAN-D2: A Feature Generating Framework for Any-Shot Learning** 2019
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Yongqin Xian, Saurabh Sharma, Bernt Schiele, **Zeynep Akata**

16. **Semantically Tied Paired Cycle Consistency for Zero-Shot Sketch-based Image Retrieval** 2019
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Anjan Dutta, **Zeynep Akata**

17. **Modeling Conceptual Understanding in Image Reference Games** 2019
Neural Information Processing Systems (NeurIPS)
Rodolfo Corona Rodriguez, Stephan Alaniz, **Zeynep Akata**

18. **Combining Generative and Discriminative Models for Hybrid Inference** 2019
Neural Information Processing Systems (NeurIPS)
Victor Garcia Satorras, **Zeynep Akata**, Max Welling

19. **Textual Explanations for Self-Driving Vehicles** 2018
European Conference of Computer Vision (ECCV)
Jinkyu Kim, Anna Rohrbach, Trevor Darrell, John Canny, **Zeynep Akata**

20. **Grounding Visual Explanations** 2018
European Conference of Computer Vision (ECCV)
Lisa Anne Hendricks, Ronghang Hu, Trevor Darrell, **Zeynep Akata**