Felix Wagner

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EDUCATION

University of Oxford — Oxford, UK
PhD in Health Data Science, Department of Engineering; Supervisor: Prof. Konstantinos Kamnitsas — Oct '21 – Oct '25
PhD Thesis: Advancing Federated Learning for Computer Vision in Medical Imaging

Vienna University of Technology — Vienna, Austria
Master of Science, Data Science; Final Grade: *Pass with Distinction; GPA: 1.0 (highest poss. score)* — Apr '19 – Nov '21
Bachelor of Science, Software & Information Engineering — Mar '15 – Apr '19

University of Illinois at Urbana-Champaign — Illinois, USA
Education Abroad, Joint Study Scholarship — Aug '18 – Dec '18

EXPERIENCE

PhD Research – Department of Engineering, University of Oxford, UK — Oct '21 – present
- Developed scalable algorithms for federated learning, generative models, test-time adaptation, multi-modal models, parameter-efficient fine-tuning, 3D segmentation, and out-of-distribution detection in medical imaging
- Built end-to-end DL systems, including data preprocessing, model training, and evaluation, in **Python/PyTorch**
- Released open-source code (GitHub) and published at top-tier conferences (CVPR, WACV, MICCAI, AAAI)

Teaching Assistant – Department of Engineering & Computer Science, University of Oxford, UK — Oct '22 – Feb '24
- Marked assignments and led classes to explain core concepts in database systems and optimization courses, while also delivering practical tutorials
- Topics included: Database theory (relational databases, query optimization), Optimization (linear/logistic regression, SVM, SGD), practical frameworks for distributed computing (Apache Spark and Hadoop)

Freelance Software Engineer – Association for Protection of Creditors, Austria — June '20 – July '21
- Built Python software for data preprocessing to unify diverse formats and integrate them into an Oracle database
- Reduced the time to process loan default data from 1 hour to 10 minutes

Interdisciplinary Research Project – Medical University of Vienna, Austria — Nov '20 – Apr '21
- Performed in-depth statistical analysis and visualization of sleeping disorder data from a representative Austrian adult population to understand key distributions and characteristics
- Applied **machine learning** models to identify significant predictors of chronic insomnia, extracting valuable insights to inform the interdisciplinary research team

Software Engineer Intern – Knorr-Bremse, Austria — July '19 – Aug '19
- Implemented software features in **C#** for a large-scale public transportation system deployed by operators throughout Austria
- Increased maintainability of the software by reducing the time of changing complex build configuration files from hours to minutes by creating CI/CD-Pipelines in Azure DevOps
- Applied software design patterns in C# to improve code structure and maintainability

Project Manager Assistant – Erste Bank, Austria — July '17; Oct '17 – Dec '17
- Collaborated with 10 team members in the Process Management Department on a nationwide software rollout for the Erste Group in Austria
- Conducted Data Analysis of the software development progress over a 1-year period

SKILLS

Programming Languages: Python, Java, C#, R, Prolog
Technologies & Tools: PyTorch, Microsoft Azure, LaTex, Oracle/PostgreSQL Database, Git, SQL, Hadoop, Spark, Linux
Languages: German (native speaker), English (fluent)

SELECTED PUBLICATIONS & RESEARCH

[1] Felix Wagner, Wentian Xu, Pramit Saha, Ziyun Liang, Daniel Whitehouse, David Menon, Virgina Newcombe, Natalie Voets, J. Alison Noble, Konstantinos Kamnitsas; "*Feasibility of Federated Learning from Client Databases with Different Brain Diseases and MRI Modalities*", accepted for an **oral** presentation at **WACV 2025 [Paper] [Code]**

[3] Felix Wagner, Pramit Saha, Harry Anthony, J Alison Noble, Konstantinos Kamnitsas; "*DisoN: Decentralized Isolation Networks for Out-of-Distribution Detection in Medical Imaging*", 2025, **under review [Paper]**

[2] Felix Wagner, Zeju Li, Pramit Saha, Konstantinos Kamnitsas; *"Post-Deployment Adaptation with Access to Source Data via Federated Learning and Source-Target Remote Gradient Alignment*", accepted for an **oral** presentation at the **MLMI** workshop at **MICCAI 2023 [Paper] [Code]**

[4] Pramit Saha, Felix Wagner, Divyanshu Mishra, Can Peng, Anshul Thakur, David Clifton, Konstantinos Kamnitsas, J Alison Noble; "*F^3OCUS - Federated Finetuning of Vision-Language Foundation Models with Optimal Client Layer Updating Strategy via Multi-objective Meta-Heuristics*", accepted at **CVPR 2025 (Highlights) [Paper]**

[5] Pramit Saha, Divyanshu Mishra, Felix Wagner, Konstantinos Kamnitsas, J. Alison Noble; "*Examining Modality Incongruity in Multimodal Federated Learning for Medical Vision and Language-based Disease Detection*", accepted at **AAAI 2025 [Paper]**

[6] Pramit Saha, Divyanshu Mishra, Felix Wagner, Konstantinos Kamnitsas, J. Alison Noble; "*FedPIA--Permuting and Integrating Adapters leveraging Wasserstein Barycenters for Finetuning Foundation Models in Multi-Modal Federated Learning*", accepted at **AAAI 2025** [Paper]

[7] Ziyun Liang, Harry Anthony, Felix Wagner, Konstantinos Kamnitsas; "*Modality cycles with masked conditional diffusion for unsupervised anomaly segmentation in MRI*", accepted for an **oral** presentation at the **MMMI** workshop at **MICCAI 2023 [Paper]**

[8] Wentian Xu, Matthew Moffat, Thalia Seale, Ziyun Liang, Felix Wagner, Daniel Whitehouse, David Menon, Virginia Newcombe, Natalie Voets, Abhirup Banerjee, Konstantinos Kamnitsas; "*Feasibility and benefits of joint learning from MRI databases with different brain diseases and modalities for segmentation*", accepted for an **oral** presentation at **MIDL 2024 [Paper]**

Master's Thesis - **Vienna University of Technology,** Austria Apr '20 – July '21

- Conducted in-depth research on the combination of symbolic AI and statistical machine learning methods for Knowledge Graphs in cooperation with the **University of Oxford**
- Developed an algorithm to inject recursive logical rules into Knowledge Graph Embeddings in **PyTorch**

AWARDS & HONORS

- **Reviewer** for **TMI, MICCAI**; recognized with an honourable mention as an **outstanding reviewer**
- **Fully funded PhD via:**
  - **Angela-Krosik scholarship,** Anglo-Austrian Society
  - **Oxford-Reuben scholarship,** Reuben Foundation, University of Oxford
  - **Health Data Science CDT scholarship,** EPSRC UK
- **Joint-Study Scholarship,** Vienna University of Technology: Selected among top-performing students university-wide for an exchange programme at the University of Illinois at Urbana-Champaign, based on academic success

VOLUNTEERING & INTERESTS

- **President – Oxford Austrian Society** Apr '24 – June '25
  - Elected to lead the student society representing Austrian students at Oxford, promoting cultural exchange and academic dialogue
  - Organized and moderated public events with notable speakers, attended by 50+ participants
  - Represented the society at the Austrian Embassy and in meetings with diplomats and politicians
- **Personal Interests:** Guitarist and bass player in the band Penguins In Suits, with a strong interest in songwriting and composition; also passionate about snowboarding and tennis