Florian Mai

Junior Research Group Leader at University of Bonn

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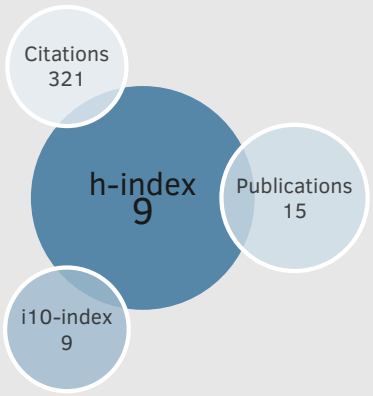
Short Bio

Florian has more than eight years of experience in artificial intelligence research. He received his PhD from EPFL and has authored 15 peer-reviewed publications, including as a lead author in top-tier conferences such as ICLR, ICML, ACL, EMNLP, AACL and JCDL. Serving on the program committee of NeurIPS, ICML, and ICLR, among others, Florian has received two Outstanding Reviewer awards. He is primarily interested in AI planning algorithms and AI safety issues such as alignment.

Metrics



Interests

- Natural Language Understanding
- Large Language Models
- Planning and Reasoning
- AI Control and Safety
- Efficient Deep Learning

Education

2018 – 2023 **Ph.D. in Electrical Engineering** — **EPFL, Switzerland**
Title: Text Representation Learning for Low Cost Natural Language Understanding
Supervisors: Dr. James Henderson, Prof. Daniel Gatica-Perez

2015 – 2018 **M.Sc. in Computer Science** — **Kiel University, Germany**
Title: Using Deep Learning for Title-Based Semantic Subject Indexing to Reach Competitive Performance to Full-Text
Supervisors: Prof. Ansgar Scherp
Grade: 1.2, grade A (top 10%)

2010 – 2015 **B.Sc. in Computer Science** — **Kiel University, Germany**
Title: Minimizing Average Weighted Completion Time for Scheduling Parallel Multiprocessor Tasks on a Variable Number of Machines
Supervisors: Prof. Klaus Jansen
Grade: 1.5, grade B (top 35%)

Selected Publications

2024 **Learning to Plan for Language Modeling from Unlabeled Data**
N. Cornille, MF. Moens, **F. Mai**
Proc. of the 1st Conference on Language Modeling

2023 **HyperMixer: An MLP-based Low Cost Alternative to Transformers**
F. Mai, A. Pannatier, F. Fehr, H. Chen, F. Marelli, F. Fleuret, J. Henderson
Proc. of the 61st Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)

2022 **Bag-of-Vectors Autoencoders for Unsupervised Conditional Text Generation**
F. Mai, J. Henderson
Proc. of the 2nd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics (Volume 1: Long Papers)

2020 **Plug and Play Autoencoders for Conditional Text Generation**
F. Mai, N. Pappas, I. Montero, N.A. Smith, J. Henderson
Proc. of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP)

2020 **Optimizer Benchmarking Needs to Account for Hyperparameter Tuning**
P.T. Sivaprasad*, **F. Mai***, T. Vogels, M. Jaggi, F. Fleuret
Proc. of the 37th International Conference on Machine Learning

Teaching Experience

Experience as a lecturer

University of Bonn — **LLM Seminar** — Fall '24
Main lecturer of the LLM seminar discussing recent topics in large language models.

KU Leuven — **Natural Language Processing** — Fall'23, Fall '24
In total three lectures on topics in Natural Language Processing.

Experience as a teaching assistant

EPFL — **Deep Learning for Natural Language Processing** — Fall'19, Fall'21
Topics in Natural Language Processing based on Deep Learning.

UniDistance Suisse — **Natural Language Processing** — Spring'20
Deep Learning solutions to Natural Language Processing tasks.

Kiel University — **"Algorithms and Data Structures" and "Computer Organization and Architecture"** — Spring'12 / Spring '15
Introductory courses at the BSc level.

Experience

Artificial Intelligence:

- Deep Learning / ML
- NLP / NLU
- Reinforcement Learning
- AI Alignment
- AI Governance

Programming:

- Python
- Java
- C++, C
- Func. Programming

Other:

- Research
- Teaching
- Supervision

Languages

English (TOEFL iBT: 112)

German (Mother tongue)

French (B1 level)

Working Experience

October, 2024 – ongoing — **Junior Research Group Leader** — **University of Bonn**
Embedded within the CAISA group of Prof. Lucie Flek, this role gives me the opportunity to establish my own research directions, as well as conduct independent research, teaching, funding acquisition, and supervision of PhD students. In collaboration with Fraunhofer IAIS, I also contribute to the development of European LLMs.

June, 2023 – September, 2024 — **Postdoctoral Research Fellow** — **KU Leuven**
Part of the ERC Advanced Grant CALCULUS under Prof. Marie-Francine Moens. I established a new research direction that focuses on augmenting large language models with planning algorithms. Other responsibilities include teaching lectures, supervising student theses, and organizing a symposium.

March, 2022 – August, 2022 — **Research Intern** — **NAVER LABS Europe**
Development of novel neural algorithms for combinatorial optimization problems by leveraging graph representation learning and planning algorithms.

Oct, 2018 – May, 2023 — **Research Assistant** — **Idiap Research Institute/EPFL**
As a research assistant at Idiap and PhD student at EPFL I focused on reducing the cost of natural language understanding through general text representation learning algorithms. I further served as a teaching assistant in postgraduate-level natural language understanding courses.

March, 2018 – July, 2018
June 2017 – Nov, 2017
April, 2016 – Jan, 2017 — **Student research assistant** — **Leibniz Information Centre for Economics**
As a part-time student researcher on the ERC grant project MOVING, I helped PhD students conduct literature reviews, design and implement experiments, write research papers, and contributed to project reporting. Over the course of two years, I contributed to five peer-reviewed publications in the domains of text classification, information retrieval, and recommender systems.

Apr, 2015 – July, 2015
Apr, 2012 – July, 2012 — **Teaching assistant** — **Kiel University**
As a teaching assistant I was responsible for holding exercise sessions and grading homework and exams in the BSc. courses "Algorithms and Data Structures" and "Computer Organization and Architecture".

Aug, 2013 – Feb, 2014 — **Intern** — **Mercedes-Benz Research & Development North America**
Prototyping of technology for smartphone-car communication (“Apple CarPlay”, “MirrorLink”).

July, 2012 – Oct, 2012 — **Intern** — **Jambit GmbH**
Prototyping of technology for smartphone-car communication (“MirrorLink”).

Grants and Awards

June 2024	AInet short-term research stay scholarship	German Academic Exchange Service
April 2023	AInet Fellowship	German Academic Exchange Service
July 2022	Outstanding reviewer award	ICML
April 2022	Highlighted reviewer award	ICLR

Community Services

Event Organization

May 2025 (planned) — **AI's Large-Scale Risks: Control, Governance, Ethics** — Organizer
This event, which is still in the early planning stages, aims to bring together academics from various disciplines to discuss issues related to large-scale risks of AI. As a co-organizer, I am involved in organizing the program and acquiring funding.

January 2024 — **CALCULUS Symposium** — Organizer
This event discussed core research questions related to the CALCULUS ERC Advanced Grant project: (Tempo-spatial) representation learning, human-inspired machine learning, continual learning, and others. As one of the main organizers, I created the program, reviewed abstract submissions, hosted sessions at the event, and took care of administrative duties.

Reviewing

Conferences	ICLR (2020, 2021, 2022, 2023, 2024, 2025), EMNLP (2020), EACL (2021), ICML (2022, 2024), NeurIPS (2023, 2024), ICASSP (2023), ARR (2024), COLING (2025)
Journals	Artificial Intelligence Review, Transactions on Pattern Analysis and Machine Intelligence, Transactions on Audio, Speech, and Language Processing
Workshops	SMLD 2019, EACL SRW 2021, SustaiNLP 2023

Supervision

MSc. students

- Sophie Willimann, 2024
- David Kaczer, 2024
- Jan Selis, 2024
- Justus-Jonas Erker, 2023

References

Ref. 1 — **Prof. Marie-Francine Moens** — KU Leuven
sien.moens@kuleuven.be

Ref. 2 — **Dr. James Henderson** — Idiap Research Institute
james.henderson@idiap.ch

Ref. 3 — **Prof. François Fleuret** — University of Geneva
francois.fleuret@unige.ch

Publications

Conferences

- M. Ravanelli, T. Parcollet, A. Moumen, S. de Langen, C. Subakan, P. Plantinga, Y. Wang, P. Mousavi, L. Della Libera, A. Ploujnikov, F. Paissan, D. Borra, S. Zaiem, Z. Zhao, S. Zhang, G. Karakasidis, S. Yeh, P. Champion, A. Rouhe, R. Braun, **F. Mai**, J. Zuluaga-Gomez, S. M. Mousavi, A. Nautsch, X. Liu, S. Sagar, J. Duret, S. Mdhaffar, G. Laperriere, M. Rouvier, R. De Mori, & Y. Esteve. (2024). Open-Source Conversational AI with SpeechBrain 1.0. *JMLR MLOSS*.
- N. Cornille, M.F. Moens & **F. Mai**. (2024) Learning to Plan for Language Modeling from Unlabeled Data. *COLM 2024.*
- J.J. Erker, **F. Mai**, N. Reimers, G. Spanakis & I. Gurevych. (2024) Triple-Encoders: Representations That Fire Together, Wire Together. *ACL 2024.*
- D. Drakulic, S. Michel, **F. Mai**, A. Sors & J.M. Andreoli. (2023). BQ-NCO: Bisimulation Quotienting for Generalizable Neural Combinatorial Optimization. *NeurIPS 2023*.
- **F. Mai***, J. Zuluaga-Gomez*, T. Parcollet, & P. Motlicek. (2023). HyperConformer: Multi-head HyperMixer for Efficient Speech Recognition. *InterSpeech 2023*.
- **F. Mai**, A. Pannatier, F. Fehr, H. Chen, F. Marelli, F. Fleuret, & J. Henderson. (2023). HyperMixer: An MLP-based Green AI Alternative to Transformers. *ACL 2023*.
- **F. Mai** & J. Henderson. (2022). Bag-of-Vectors Autoencoders for Unsupervised Conditional Text Generation. *AACL 2022*.
- **F. Mai**, N. Pappas, I. Montero, & N.A. Smith, & J. Henderson. (2020). Plug and Play Autoencoders for Conditional Text Generation. *EMNLP 2020*.
- P.T. Sivaprasad*, **F. Mai***, T. Vogels, M. Jaggi, & F. Fleuret. (2020). Optimizer Benchmarking Needs to Account for Hyperparameter Tuning. *ICML 2020*.
- **F. Mai**, L. Galke, & A. Scherp. (2019). CBOW Is Not All You Need: Combining CBOW with the Compositional Matrix Space Model. *ICLR 2019*.
- L. Galke, **F. Mai**, I. Vagliano, & A. Scherp. (2018). Multi-Modal Adversarial Autoencoders for Recommendations of Citations and Subject Labels. *UMAP 2018*.
- **F. Mai**, L. Galke, & A. Scherp. (2018). Using Deep Learning For Title-Based Semantic Subject Indexing To Reach Competitive Performance to Full-Text. *JCDL 2018*.
- L. Galke, **F. Mai**, A. Schelten, D. Brunsch, & A. Scherp. (2017). Using Titles vs. Full-Text as Source for Automated Semantic Document Annotation. *K-CAP 2017*.

Workshops

- I. Vagliano, L. Galke, **F. Mai**, & A. Scherp. (2018). Using Adversarial Autoencoders for Multi-Modal Automatic Playlist Continuation. *RecSysChallenge 2018*.
- A. Saleh, **F. Mai**, C. Nishioka, & A. Scherp. (2017). Reranking-based Recommender System with Deep Learning. *Workshop on "Deep Learning in heterogenen Datenbeständen" at INFORMATIK 2017*.

Preprints

- N. Cornille, **F. Mai** & M.F. Moens. (2024) End-to-end Planner Training for Language Modeling. *arXiv preprint*
- **F. Mai**, N. Cornille & M.F. Moens. (2024) Learning to Plan Long-Term for Language Modelling. *arXiv preprint*
- R.K. Mahabadi*, **F. Mai***, & J. Henderson. (2019). Learning Entailment-Based Sentence Embeddings from Natural Language Inference. *OpenReview preprint*.

*: equal contribution