Florian Mai

Postdoctoral Research Fellow at KU Leuven

Date of Birth: Oct. 18, 1990

+41783515554

florian.ren.mai@gmail.com

florian-mai

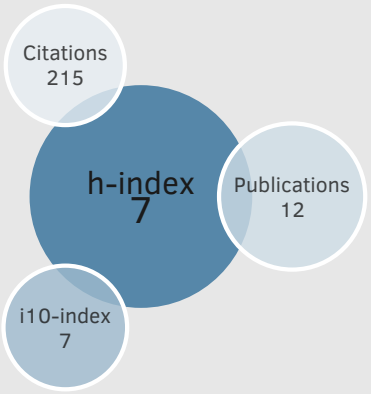
Google Scholar

https://florianmai.github.io

Short Bio

Florian has more than seven years of experience in artificial intelligence research. He received his PhD from EPFL and has authored 12 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 scalable planning algorithms for large language models and how to use them to improve their control.

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

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

2019 **CBOW Is Not All You Need: Combining CBOW with the Compositional Matrix Space Model**
F. Mai, L. Galke, A. Scherp
International Conference on Learning Representations

Teaching Experience

Experience as a lecturer

KU Leuven **Natural Language Processing** — Fall'23
Two 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.

Formal training

EPFL **Science and Engineering Teaching and Learning** — Spring '21
Evidence-based effective teaching methods in STEM/CS.

Experience

Machine Learning:

- Deep Learning ●●●●●
- NLP / NLU ●●●●●
- Reinforcement Learning ●●●●○
- (Neural) Comb. Opt. ●●●○○
- Speech Processing ●●○○○

Programming:

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

Other:

- Research ●●●●●
- Teaching ●●●●○
- Supervision ●●●●○
- Administration ●●●○○

Languages

English (TOEFL iBT: 112/120)

German (Mother tongue)

French (B1 level)

Working Experience

June, 2023 – ongoing — **Postdoctoral Research Fellow** — **KU Leuven**
Part of the ERC Advanced Grant CALCULUS under Prof. Marie-Francine Moens. My research focuses on augmenting large language models with planning algorithms to improve their controllability and robustness. Other responsibilities include teaching lectures, supervising student theses, and the organization of 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”).

Relevant Experience

EA Lausanne, EPFL — **Impact Seminar** — Fall 2022
8 weeks of seminar discussions on topics of Effective Altruism, including AI safety

BlueDot Impact — **AI Safety Fundamentals 101** — Spring 2023
Completed an introductory seminar on AI safety, including writing a proposal for a scalable oversight algorithm as a course project.

Grants and Awards

April 2023	AInet Fellowship	German Academic Exchange Service
July 2022	Outstanding reviewer award	ICML
April 2022	Highlighted reviewer award	ICLR
June 2018	Employment-Based Postgraduate Scholarship Programme (declined)	Irish Research Council

Review Duties

Conferences	ICLR (2020, 2021, 2022, 2023, 2024), EMNLP (2020), EACL (2021), ICML (2022), NeurIPS (2023), ICASSP (2023)
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

Publications

Conferences

- 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

- R.K. Mahabadi*, **F. Mai***, & J. Henderson. (2019). Learning Entailment-Based Sentence Embeddings from Natural Language Inference. *OpenReview preprint*.

*: equal contribution