

Justus-Jonas Erker

Resumé

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Passionate about Artificial Intelligence, driven by the beauty of emerging intelligence through mathematics. Visit my portfolio website: erker.ai for my latest papers and research projects.

References

- PhD Recommendation Letter by Prof. Dr. Jerry Spanakis
- PhD Recommendation Letter by DFKI
- Honours Certificate Premium Excellence Program Maastricht University
- Reference Letter by fileee
- Reference Letter by Amadeus
- Recommendation letter by Prof. Dr. Hübl

Publications

- 07/2023 **Imagination is All You Need! Curved Contrastive Learning for Abstract Sequence Modeling Utilized on Long Short-Term Dialogue Planning**, Justus-Jonas Erker (supervised by Dr. Stefan Schaffer and Prof. Gerasimos Spanakis), *Findings of ACL 2023*, Toronto, Canada.
- 06/2022 **A Cancel Culture Corpus through the lens of Natural Language Processing**, Justus-Jonas Erker (supervised by Prof. Catalina Goanta and Prof. Gerasimos Spanakis), *LateRAISSE @ LREC 2022*, Marseille, France.

Talks and Service

- 12/2022 **Reviewer**, *ACL Rolling Review (ARR)*.
- 05/2022 **Speaker**, *Long-term Dialogue Planning: A Graph-Based Dialogue Transformer exploiting Sentence Embeddings to imagine Conversation States*, ESR Workshop “Beyond Chatbot Design”, LT-bidge.eu, University of Malta.
- 03/2022 **Subreviewer**, *4th International Conference on Conversational User Interfaces (CUI 2022) inaugural ACM In-Cooperation*, Glasgow, UK.

Work Experience

- 10/2023-Present **Doctoral Researcher in NLP**, *UKP Lab, Technische Universität Darmstadt*, Darmstadt, Germany.
Supervised by [Dr. Nils Reimers](#) and [Prof. Dr. Iryna Gurevych](#)
- 02/2022-Present **Research in NLP & Cognitive AI**, *German Research Center for Artificial Intelligence*, Berlin, Germany.
Part of the Cognitive Assistants Department working in following rolls:

- 10/2023- **Part-time (10%) affiliated Researcher in NLP**, *German Research Center for Present Artificial Intelligence*, Berlin, Germany.
Working on retrieval-augmented LLMs for grounded Question Answering for the [ToHyVe Project](#).
- 01/2023- **Part-time (50%) Researcher in NLP**, *German Research Center for Artificial Intelligence*, Berlin, Germany.
10/2023 Working on augmented LLMs for grounded Question Answering for the [ToHyVe Project](#).
- 02/2022- **Research Intern NLP & Cognitive AI**, *German Research Center for Artificial Intelligence*, Berlin, Germany.
12/2022 Working on Curved Contrastive Learning, a sequence modeling technique that can map conversational representations in a self-organizing manner to a conversational surface by only using cosine similarity between the separately encoded sequence members. The resulting paper "Imagination Is All You Need!" was accepted in the [Findings of ACL 2023](#).
- 08/2023- **Co-Founder & CTO**, *FoxFind.Ai UG (haftungsbeschränkt)*.
Present building an API for search over unstructured text data for the *Digit@Work GmbH* and *Wobe Systems GmbH*. Legally first managing director who is released from all restrictions of §181 BGB.
- 08/2022- **Research Assistant NLP**, *Maastricht Law & Tech Lab, Maastricht University*.
12/2022 working on influencer regulation for the Dutch government via Social Media Analysis under the aspect of NLP and social network graphs.
- 09/2021- **Graduate Teaching Assistant**, *Maastricht University*.
01/2022 Teaching Assistant in Computer Science I and Machine Learning.
- 11/2020- **Lead Data Scientist**, *fileee GmbH*.
10/2021 As Data Science Team Lead responsible for Data Science topics within the company. Sustainably improving the document analysis of fileee in the fields of Computer Vision, NLP and End-to-End Deep Learning.
- 08/2017- **Data Scientist, Corporate Student**, *Amadeus IT Group*.
10/2020 part of a corporate study program sponsored by Amadeus. Working at Amadeus Germany
(2015) in Bad Homburg, Germany and Navitaire in Salt Lake City, Utah, USA.
- from 09/2019 **AI Forum Coordinator**, *Navitaire, an Amadeus Company and Amadeus Germany*,
to 11/2020 Salt Lake City, Utah, USA,
Coordinator and Moderator of the Machine Learning / Artificial Intelligence Forum between Executives of Amadeus Germany and Navitaire, an Amadeus Company to push AI Research in the travel industry further.
- from 04/2020 **Data Scientist (Thesis Student)**, *Navitaire, an Amadeus Company*, Salt Lake
to 10/2020 City, Utah, USA, Visa Sponsor: AIESEC United States (due to Coronavirus remote).
Part of Navitaire's Ancillary Price Optimization (APO) Team creating an AI-based cloud streaming solution on Azure. Optimizing prices, hardware and advertisement for Airline Booking Engines by building a self-learning Machine Learning Algorithm that does real-time analyzes on airline customer booking sessions.
- from 11/2019 **Data Scientist Intern**, *Amadeus Germany GmbH*, Bad Homburg, Germany.
to 02/2020 Designing a Machine Learning Platform on a Linked open Data architecture for the German tourism industry. Implementing an AI showcase to the German Center for Tourism (Agency on behalf of the German government).

from 08/2017 **Data Scientist | Software Engineer Intern**, *Navitaire, an Amadeus Company and Amadeus Germany*, Salt Lake City, Utah, USA.

5 more internships (each 3 months):

- POC on Deep Fakes for travel data based on Transformers and Wasserstein GANs at Navitaire in SLC.
- At Amadeus Innovation created a robot pepper application for arriving customers at airports to help with train connections together with DB, including a live test at Hamburg Airport.
- Optimized JUnit and JSunit tests based on test coverage data using the modularity approach (set theory).
- Implemented Oozie workflows: from data preparation with Scala Spark on Amadeus' Hadoop Ecosystem up to Big Data visualization on Qlik Sense.
- Developed a web-based event organizer tool in Python Django in a Kanban team.

from 06/2015 **Software Engineer Intern**, *Amadeus Germany GmbH*, Bad Homburg, Germany.
to 07/2015 Developed an internal license managing tool based on Python Django during summer break.

from 10/2018 **Student Assistant in Mathematics**, *Cooperative State University*, Mannheim, Baden-Wuerttemberg.

Part of the Research Project OPTES+ which is sponsored by the German Federal Ministry for Research and Education. Designing math problems for Students based on logic trees (called STACK). Supervised by Prof. Dr. Reinhold Hübl.

Education

2023-2027 **PhD Candidate in NLP**, *UKP Lab, Technische Universität Darmstadt*, Darmstadt, Germany.

Supervised by [Dr. Nils Reimers](#) and [Prof. Dr. Iryna Gurevych](#)

2020 - 2023 **MSc. Artificial Intelligence**, *Maastricht University*, Netherlands, Maastricht.

Course language: English, Current GPA: 8.69 (Distinction)

2021 - 2022 **Honours Student (MSc.)**, *Maastricht University*, PREMIUM Excellence program.

Selected for "Maastricht University's Honours programme for high-performing, motivated master's students" where I receive individual coaching focused on personal competence development and participate in an interdisciplinary research project, consulting Capgemini Invent on Measurement of Diversity within companies using NLP techniques.

2017 - 2020 **BSc. Computer Science, Minor in International Business Competence**, *Baden-Wuerttemberg Cooperative State University*, Germany, Mannheim.

Cooperative study program sponsored by Amadeus. Course language: English

Technical Skills and Languages

Programming Languages: Python (11 years), Scala, C, Kotlin, Java and SQL

Frameworks and Libraries: PyTorch, TensorFlow/Keras, Scikit-Learn, XGBoost, OpenCV, Transformers, Pandas, Numpy, Matplotlib/Seaborn, Python Django, Spark and QiSDK

Tools & Technologies: Microsoft Azure, Hadoop Ecosystem, QlikView, HUE, Jira/Confluence and Git

Languages: German (native), English (fluently), Spanish (3 years in school)