

# Danni Liu

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## Education

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|-------------------|--|
| 02/2020 – now     | <b>Ph.D. Computer Science</b><br>Karlsruhe Institute of Technology, Germany (07/2022 – now)<br>Maastricht University, Netherlands (02/2020 – 06/2022)<br><i>Advisor:</i> Jan Niehues<br><i>Research focus:</i> Transfer Learning by Language-Invariant Representations |
| 02/2018 – 01/2020 | <b>M.Sc. Artificial Intelligence</b> (cum laude)<br>Maastricht University, Netherlands<br><i>Thesis:</i> Low-Latency End-to-End Speech Recognition with Enhanced Readability   |
| 09/2014 – 08/2017 | <b>B.Sc. Data Science and Knowledge Engineering</b> (cum laude)<br>Maastricht University, Netherlands<br><i>Thesis:</i> Short Text Topic Modeling Enhanced by Collocations and Word Embeddings   |
| 09/2011 – 08/2014 | <b>B.Sc. International Business Administration</b> (cum laude)<br>Erasmus University Rotterdam, Netherlands<br><i>Thesis:</i> Relationship Between Board Composition and R&D Intensity   |

## Professional Experience

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| 07/2021 – 01/2022 | <b>Facebook / Meta AI</b> , <i>Research Intern</i> , Remote.<br>10/2021 – 01/2022: employed as contingent worker via Blue Lynx<br><i>Project:</i> Low-latency TTS for speech-to-speech translation, published in Interspeech [6] |
| 03/2019 – 08/2019 | <b>Nuance Communications (now Microsoft)</b> , <i>Research Intern</i> , Aachen, Germany.   |
| 08/2015 – 01/2019 | <b>Open Line</b> , <i>Trainee</i> → <i>Business Intelligence Consultant</i> , Maastricht-Airport, Netherlands.   |

## Talks

|         |   |
|---------|---|
| 09/2024 | <b>University of Toronto &amp; OntarioTech University</b> , "Retrieval-Augmented Approaches for Low-Resource Conditions in Speech Translation" [slides] and |
| 07/2024 | "Learning from Less: Machine Translation and Summarization in Low-Resource Settings" [slides]   |
| 12/2022 | <b>IWSLT Lecture Series</b> , "Learning Shared Representations for Translation in Low-Resource Conditions" [video] [slides]                                 |
| 02/2022 | <b>Meta AI</b> , "Studying Shared Representations in NMT through Zero-Shot Translation" [slides]  |

## Teaching & Mentoring

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|-------------|---|
| 2020 – now  | <b>Supervision of Bachelor/Master's Theses &amp; Internships</b><br>Leading to publications [16, 15, 13, 11, 9, 5, 4]   |
| 2022 – now  | <b>Tutor</b> , Karlsruhe Institute of Technology, Germany<br><i>Courses:</i> Natural Language Processing, Machine Translation (guest lecturer), multiple seminars |
| 2019 – 2021 | <b>Teaching Assistant</b> , Maastricht University, Netherlands<br><i>Courses:</i> Advanced Natural Language Processing, Probability and Statistics                |

## Publications

17. **Danni Liu**, Jan Niehues. 2025. [Middle-Layer Representation Alignment for Cross-Lingual Transfer in Fine-Tuned LLMs](#). [poster] ACL
16. Hyunji Lee, **Danni Liu**, Supriti Sinhamahapatra, and Jan Niehues. 2025. [How do Multimodal Foundation Models Encode Text and Speech? An Analysis of Cross-Lingual and Cross-Modal Representations](#). [poster] NAACL
15. Siqi Li\*, **Danni Liu**\*, and Jan Niehues. 2024. [Optimizing Rare Word Accuracy in Direct Speech Translation with a Retrieval-and-Demonstration Approach](#). EMNLP
14. Tu Anh Dinh, Carlos Mullov, Leonard Bärmann, Zhaolin Li, **Danni Liu**, Simon Reiß, Jueun Lee, Nathan Lerzer, Jianfeng Gao, Fabian Peller-Konrad, Alexander Waibel, Tamim Asfour, Michael Beigl, Rainer Stiefelhagen, Carsten Dachsbacher, Klemens Böhm, Jan Niehues. 2024. [SciEx: Benchmarking Large Language Models on Scientific Exams with Human Expert Grading and Automatic Grading](#). EMNLP
13. Lukas Hilgert, **Danni Liu**, and Jan Niehues. 2024. [Evaluating and Training Long-Context Large Language Models for Question Answering on Scientific Papers](#). CustomNLP4U Workshop @ EMNLP
12. **Danni Liu** and Jan Niehues. 2024. [Recent Highlights in Multilingual and Multimodal Speech Translation](#). [slides] IWSLT
11. Vladimir Solovyev, **Danni Liu**, and Jan Niehues. 2024. [Language-Independent Representations Improve Zero-Shot Summarization](#). NAACL
10. **Danni Liu** and Jan Niehues. 2024. [How Transferable are Attribute Controllers on Pretrained Multilingual Translation Models?](#). [slides] [poster] EACL
9. Yunus Demirag, **Danni Liu**, and Jan Niehues. 2024. [Benchmarking Diffusion Models for Machine Translation](#). EACL Student Research Workshop
8. Christian Huber, Tu Anh Dinh, Carlos Mullov, Ngoc-Quan Pham, Thai Binh Nguyen, Fabian Retkowski, Stefan Constantin, Enes Ugan, **Danni Liu**, Zhaolin Li, Sai Koneru, Jan Niehues, and Alexander Waibel. 2023. [End-to-End Evaluation for Low-Latency Simultaneous Speech Translation](#). EMNLP Demo
7. **Danni Liu** and Jan Niehues. 2022. [Learning an Artificial Language for Knowledge-Sharing in Multilingual Translation](#). [video] [slides] WMT
6. **Danni Liu**, Changhan Wang, Hongyu Gong, Xutai Ma, Yun Tang, and Juan Pino. 2022. [From Start to Finish: Latency Reduction Strategies for Incremental Speech Synthesis in Simultaneous Speech-to-Speech Translation](#). [poster] Interspeech
5. Tu Anh Dinh, **Danni Liu**, and Jan Niehues. 2022. [Tackling Data Scarcity in Speech Translation using Zero-shot Multilingual Machine Translation Techniques](#). ICASSP
4. Sai Koneru, **Danni Liu**, and Jan Niehues. 2021. [Unsupervised Machine Translation On Dravidian Languages](#). DravidianLangTech Workshop @ EACL
3. **Danni Liu**, Jan Niehues, James Cross, Francisco Guzmán, and Xian Li. 2021. [Improving Zero-shot Translation by Disentangling Positional Information](#). [video] [slides] ACL
2. **Danni Liu**, Gerasimos Spanakis, and Jan Niehues. 2020. [Low-Latency Sequence-to-Sequence Speech Recognition and Translation by Partial Hypothesis Selection](#). [video] [slides] Interspeech
1. **Danni Liu**, Jan Niehues, and Gerasimos Spanakis. 2020. [Adapting End-to-End Speech Recognition for Readable Subtitles](#). [video] [slides] IWSLT

(\* indicates equal contribution)

## Shared Tasks (Selected)

- S7. **Danni Liu**, Thai Binh Nguyen, Sai Koneru, Enes Yavuz Ugan, Ngoc-Quan Pham, Tuan Nam Nguyen, Tu Anh Dinh, Carlos Mullov, Alexander Waibel, and Jan Niehues. 2023. [KIT's Multilingual Speech Translation System for IWSLT 2023](#). [poster] 🏆 **Winning system in multilingual track (constrained)** *IWSLT*
- S6. Peter Polák, **Danni Liu**, Ngoc-Quan Pham, Jan Niehues, Alexander Waibel, and Ondřej Bojar. 2023. [Towards Efficient Simultaneous Speech Translation: CUNI-KIT System for Simultaneous Track at IWSLT 2023](#). *IWSLT*
- S5. Abteen Ebrahimi, Manuel Mager, Adam Wiemerslage, Pavel Denisov, Arturo Oncevay, **Danni Liu**, Sai Koneru, Enes Yavuz Ugan, Zhaolin Li, Jan Niehues, Monica Romero, Ivan G Torre, Tanel Alumäe, Jiaming Kong, Sergey Polezhaev, Yury Belousov, Wei-Rui Chen, Peter Sullivan, Ife Adebara, Bashar Talafha, Alcides Alcoba Inciarte, Muhammad Abdul-Mageed, Luis Chiruzzo, Rolando Coto-Solano, Hilaria Cruz, Sofía Flores-Solórzano, Aldo Andrés Álvarez López, Ivan Meza-Ruiz, John E Ortega, Alexis Palmer, Rodolfo Joel Zevallos Salazar, Kristine Stenzel, Thang Vu, and Katharina Kann. 2022. [Findings of the Second AmericasNLP Competition on Speech-to-Text Translation](#). 🏆 **Winning system in speech translation and machine translation tracks** *NeurIPS 2022 Competition Track*
- S4. Ngoc-Quan Pham, Tuan Nam Nguyen, Thai-Binh Nguyen, **Danni Liu**, Carlos Mullov, Jan Niehues, and Alexander Waibel. 2022. [Effective combination of pretrained models - KIT@IWSLT 2022](#) *IWSLT*
- S3. Peter Polák, Ngoc-Quan Pham, Tuan Nam Nguyen, **Danni Liu**, Carlos Mullov, Jan Niehues, Ondřej Bojar, and Alexander Waibel. 2022. [CUNI-KIT System for Simultaneous Speech Translation Task at IWSLT 2022](#). 🏆 **Winning system in simultaneous translation track** *IWSLT*
- S2. **Danni Liu** and Jan Niehues. 2021. [Maastricht University's Large-Scale Multilingual Machine Translation System for WMT 2021](#). [poster] 🏆 **Best performing system from university participants** *WMT*
- S1. **Danni Liu** and Jan Niehues. 2021. [Maastricht University's Multilingual Speech Translation System for IWSLT 2021](#). [video] [slides] *IWSLT*

## Service

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|-----------|--|
| Reviewer  | ACL Rolling Review (2023 - now); ACL (2025, 2024), EMNLP (2023 - now), EACL (2023), COLING (2025, 2024), WMT (2022), ICASSP (2025, 2024), Interspeech (2025, 2024), EACL-SRW (2024), WiNLP (2025, 2024), DravidianLangTech (2024). |
| Volunteer | ACL 2020   |