Sangeet Sagar

Personal Website | Github | Experience – 4.5 years

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Education

- **Universität des Saarlandes** — Saarbrücken, Germany
  Master of Science in Language Science and Technology; GPA: 1.8 (ECTS, lower is better) — *Oct. 2020 – April 2023*
  Thesis: Noise Robust Speech Recognition for Search and Rescue Domain [Report] [Code] [Video]

- **The LNM Institute of Information Technology** — Jaipur, India
  Bachelor of Technology in Electronics and Communication Engineering; GPA: 7.13/10.0 — *Aug. 2015 – June. 2019*
  Thesis: Analysis of Emotion Recognition using Speech Features

Programming Skills

- **Programming Languages**: Python, C++, Bash, MATLAB
- **Libraries/Frameworks**: PyTorch, K2/Icefall, SpeechBrain, Huggingface
- **Tools & Platforms**: Docker, Git, AWS, HPC (SLURM), Adv. Linux user

Experience

- **EML Speech Technology GmbH** — Munich, Germany
  Research Engineer for Automatic Speech Recognition — *Sept 2023 – Present*
  - Leading the development of end-to-end models to facilitate real-time Automatic Speech Recognition (ASR) during live conferences within a commercial setting.
  - Developed a C++ runtime for a streaming faster Conformer-Transducer (NeMo) and integrated its CPU-based decoder with our in-house end-to-end ASR decoder.
  - Initiated and guided the integration of a target speaker extraction system into the core ASR pipeline, improving WER by 18% on overlapping speech and enabling deployment in challenging multi-speaker scenarios.

- **Airbus Defence and Space GmbH** — Munich, Germany
  Speech-to-Text Internship — *(5 months) May 2023 – Sept 2023*
  - Utilized SOTA models such as the Wav2Vec2 and Whisper ASR models to enhance communication between pilots and air traffic control (ATC) by developing state-of-the-art speech-to-text systems for aerospace domain data.

- **German Research Center for Artificial Intelligence (DFKI) GmbH** — Saarbrücken, Germany
  Research Assistant | HiWi — *(1.6 years) June 2021 – Feb 2023*
  - Designed and developed a noise-robust automatic speech recognition system (STT) (German language) as a component of MS thesis, enabling functionality under hostile noisy conditions such as search and rescue operations.
  - Trained open-source attention-based BiRNN punctuation restoration system+TruCasing for the German language. The system outperformed the baseline model- Vosk model by over 14% in recall metric.

- **Institute of Formal and Applied Linguistics, Charles University** — Prague, Czechia
  University research assistant — *(1 year) Oct. 2019 – Dec 2020*
  - Served as the principal tester and evaluator for a live speech-language translation (SLT) system (ELITR project), identifying key failure points and providing critical feedback.
  - Training and testing (with in-domain/out-of-domain data) Czech punctuator system for live ASR, thereby improving the usability of live ASR transcripts.

- **Faculty of Information Technology, Brno University of Technology** — Brno, Czechia
  University research assistant — *(8 months) Feb. 2019 – Sept. 2019*
  - Developed and implemented a novel system for cross-lingual topic identification in low-resource languages (Kinyarwanda, Zulu, Hindi), achieving a weighted average precision of 0.52 on Kinyarwanda by building upon a linear transformation technique to English embedding space.
  - Managed core tasks including text feature extraction, classifier training, and embedding generation for cross-lingual analysis.

Languages

- **Beginner**: German (A2)
- **Fluent**: English (C1)
- **Native**: Hindi

Publications

[1] Sangeet Sagar et al. "RescueSpeech: A German Corpus for Speech Recognition in Search and Rescue Domain". In: ASRU 2023. arXiv: 2306.04054 [eess.AS].

[2] Sangeet Sagar, Abhinav Bhatt, and Abhijith Srinivas Bidaralli. *Defending Against Stealthy Backdoor Attacks*. 2022. arXiv: 2205.14246 [cs.CR].

[3] Ondřej Bojar et al. "ELITR Multilingual Live Subtitling: Demo and Strategy". In: *Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics: System Demonstrations*. Online: Association for Computational Linguistics, Apr. 2021, pp. 271–277. DOI: 10.18653/v1/2021.eacl-demos.32. URL: https://aclanthology.org/2021.eacl-demos.32.

[4] Dario Franceschini et al. "Removing European Language Barriers with Innovative Machine Translation Technology". English. In: *Proceedings of the 1st International Workshop on Language Technology Platforms*. Marseille, France: European Language Resources Association, May 2020, pp. 44–49. ISBN: 979-10-95546-64-1. URL: https://aclanthology.org/2020.iwltp-1.7.

[5] Dominik Macháček et al. *ELITR Non-Native Speech Translation at IWSLT 2020*. 2020. DOI: 10.48550/ARXIV.2006.03331. URL: https://arxiv.org/abs/2006.03331.

[6] Peter Polák et al. "CUNI Neural ASR with Phoneme-Level Intermediate Step for~Non-Native~SLT at IWSLT 2020". In: *Proceedings of the 17th International Conference on Spoken Language Translation*. Online: Association for Computational Linguistics, July 2020, pp. 191–199. DOI: 10.18653/v1/2020.iwslt-1.24. URL: https://aclanthology.org/2020.iwslt-1.24.