Shravan Nayak

Personal Data

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Education

Sep 2023 - Current	Master's in Computer Science (thesis) University of Montreal, Montreal Advisor: Prof. Aishwarya Agrawal
July 2017 - May 2021	Bachelor's in Electronics Engineering IIT (BHU) Varanasi, Varanasi, *GPA*: 9.41/10 Head of Programmers Club, Department Football team

Work Experience

Sep 2023 - Current	**Graduate Research Assistant at Mila, Montreal** Advisor: Prof. Aishwarya Agrawal Developing vision language systems and datasets that transcend linguistic barriers to cater to diverse demographics and cultures.
Sep 2021 - Mar 2023	**Research Intern at University of Toronto, Toronto** Advisors: Prof. En Shiun Annie Lee, Prof. Surangika Ranathunga Conducted extensive analysis on the translation capabilities of LLMs for low-resource languages.
Jul 2021 - Aug 2023	**Software Engineer II at Microsoft, Hyderabad** Part of the **PowerPoint Mobile** team Played a key role in crafting user experiences, developing features like background customization, text highlighting and online video insertion.
May 2020 - Dec 2022	**Research Intern at University of Hamburg, Hamburg** Advisors: Prof. Timo Baumann, Prof. Chris Beimann, Worked on audio-visual translation a.k.a. dubbing, with a focus on dataset creation, machine translation, speech synthesis and evaluation of dubbing systems.
May 2019 - Dec 2019	**Research Intern at Indian Institute of Science, Bangalore** Advisors: Prof. Shalabh Bhatnagar, Prof. Raghuram Bharadwaj Developed a stochastic game framework, leveraging a novel DQN approach in addressing supply-demand management in multi-microgrid networks.

Publications

Refereed Papers	**Leveraging Auxiliary Domain Parallel Data in Intermediate Task Fine-tuning for Low-resource Translation** **Shravan Nayak**, Surangika Ranathunga, Sarubi Thillainathan, Rikki Hung, Anthony Rinaldi, Yining Wang, Jonah Mackey, Andrew Ho, En-Shiun Annie Lee. *Practical Machine Learning for Developing Countries (PML4DC) workshop, ICLR 2023.* **A Deep Dive Into Neural Synchrony Evaluation for Audio-visual Translation** **Shravan Nayak**, Christian Schuler, Debjoy Saha, Timo Baumann. *Proceedings of the 2022 International Conference on Multimodal Interaction, ICMI 2022.*

Pre-Trained Multilingual Sequence-to-Sequence Models: A Hope for Low-Resource Language Translation?

En-Shiun Annie Lee, Sarubi Thillainathan, **Shravan Nayak**, Surangika Ranathunga, David Ifeoluwa Adelani, Ruisi Su, Arya D. McCarthy.
Findings of the Association for Computational Linguistics, ACL 2022.

Merkel Podcast Corpus: A Multimodal Dataset Compiled from 16 Years of Angela Merkel's Weekly Video Podcasts

Debjoy Saha, **Shravan Nayak**, Timo Baumann.
Language Resources and Evaluation Conference, LREC 2022.

The two shades of dubbing in neural machine translation

Alina Karakanta, Supratik Bhattacharya, **Shravan Nayak**, Timo Baumann, Matteo Negri, Marco Turchi.
Proceedings of the 28th International Conference on Computational Linguistics, COLING 2020.

See me speaking? Differentiating on whether words are spoken on screen or off to optimize machine dubbing

Shravan Nayak, Timo Baumann, Supratik Bhattacharya, Alina Karakanta, Matteo Negri, Marco Turchi.
Deep Video Understanding Workshop, ICMI 2020.

Stochastic Game Frameworks for Efficient Energy Management in Microgrid Networks

Shravan Nayak, Chanakya Ekbote, Annanya Pratap Singh Chauhan, Raghuram Bharadwaj Diddigi, Prishita Ray, Abhinava Sikdar, Sai Koti Reddy Danda, Shalabh Bhatnagar.
2020 IEEE PES Innovative Smart Grid Technologies Europe, ISGT-Europe 2020.

Projects

Sep 2021 - Mar 2023	Machine Translation for low resource languages	[Github]

- Conducted an extensive analysis of mBART's and mT5's translation performance on eight diverse low-resource languages.
- Executed large scale empirical tests using LLMs to identify the best fine-tuning and pre-training methods for domain adaptation for low-resource language translation.

Mar 2021 - Oct 2021	Merkel Podcast Corpus	[Github]

- Curated single-speaker German audio-video-text corpus from Angela Merkel's podcasts.
- Developed video aware text-to-speech systems for lip-synchronous speech generation.

May 2019 - Dec 2022	Dubbing	[GitHub]

- Investigated machine translation systems in the context of Dubbing.
- Evaluated SyncNet scores' aptness as an audio-visual synchrony metric for dubbing systems and analyzed its correlation with human judgments.

Awards

2023	Mila Scholarship (Providing full tuition coverage and stipend)
2020	DAAD WISE Scholarship
2019	Indian Academy of Sciences, Summer Research Fellowship

Invited Talks

May 2023	Demystifying LLMs, IIT (BHU) Varanasi
Nov 2022	Pre-Trained Multilingual Sequence-to-Sequence Models for NMT: Tips, Tricks and Challenges, Toronto Machine Learning Summit
Sep 2022	iOS Debugging Tools, Microsoft
Aug 2021	Research Scholarships for Undergrads, Computer Vision Talks