Sumanth **Doddapaneni**

PhD in Computer Science, IIT Madras

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Google Scholar twitter.com/sumanthd17

Education

Jan 2022 – Ongoing | **Indian Institute of Technology (IIT), Madras** — **Chennai, India**
Ph.D, Computer Science & Engineering
Advisors: Mitesh M. Khapra, Anoop Kunchukuttan

Aug 2016 – May 2020 | **Indian Institute on Information Technology (IIIT), Sri City** — **Sri City, India**
B.Tech., Electronics & Communications Engineering

Experience

Nov 2023 – Present | **Google Research** — **Bangalore, India**
Research Intern | Hosts: Nitish Gupta, Partha Talukdar

June 2023 – Oct 2023 | **Google Research** — **Mountain View, USA**
Student Researcher | Hosts: Krishna Sayana, Vikram Aggarwal
Worked on Recommendations with Language Models

Oct 2021 – Present | **AI4Bharat, IIT Madras** — **Chennai, India**
PhD Researcher | Advisors: Mitesh M. Khapra, Anoop Kunchukuttan, Pratyush Kumar
Working on Multilingual Language modeling and Machine Translation,
with a focus on low-resource Indian languages

Nov 2022 – Mar 2023 | **Mila - Quebec AI Institute** — **Remote**
Collaborator | Host: Rahul Aralikatte, Jackie Chi Kit Cheung
Exploring pretraining methods to develop better multilingual summarization models.

Oct 2020 – Sep 2021 | **Robert Bosch Centre for Data Science and AI, IIT Madras** — **Chennai, India**
Post Baccaulaurate Fellow | Advisors: Mitesh M. Khapra, Anoop Kunchukuttan, Pratyush Kumar
Built SOTA models for Machine Translation (IndicTrans) and
Automatic Speech Recognition (IndicWav2Vec) for Indian Languages

Select Publications

P=Preprints, C=Conference, W=Workshop, J=Journal, *=Equal Contribution

[J.3] **IndicTrans2: Towards High-Quality and Accessible Machine Translation Models for all 22 Scheduled Indian Languages** [🔗][Code]
Jay Gala, Pranjal A Chitale, Raghavan AK, Sumanth Doddapaneni, Varun Gumma,
Aswanth Kumar, Janki Nawale, Anupama Sujatha, Ratish Puduppully, Vivek Raghavan,
Pratyush Kumar, Mitesh M Khapra, Raj Dabre, Anoop Kunchukuttan
Transactions on Machine Learning Research **[TLMR 2023]**

[J.2] **A Survey in Adversarial Defences and Robustness in NLP** [🔗]
Shreya Goyal, Sumanth Doddapaneni, Mitesh M Khapra, Balaraman Ravindran
ACM Computing Surveys **[CSUR 2023]**

[J.1] **Samanantar: The Largest Publicly Available Parallel Corpora Collection for 11 Indic Languages** [🔗][Code]
Gowtham Ramesh*, Sumanth Doddapaneni*, *et. al*
Transactions of the Association for Computational Linguistics **[TACL 2022]**

[C.5] **Towards Leaving No Indic Language Behind: Building Monolingual Corpora, Benchmark and Models for Indic Languages** [🔗][Code]
Sumanth Doddapaneni, Rahul Aralikatte, Gowtham Ramesh, Shreya Goyal,
Mitesh M. Khapra, Anoop Kunchukuttan, Pratyush Kumar
61th Annual Meeting of the Association for Computational Linguistics **[ACL 2023]**

[C.4] **Naamapadam: A Large-Scale Named Entity Annotated Data for Indic Languages** [🔗]
Arnav Mhaske, Harshit Kedia, Sumanth Doddapaneni, Mitesh M. Khapra, Pratyush Kumar, Rudra Murthy V, Anoop Kunchukuttan
61^{th} Annual Meeting of the Association for Computational Linguistics [**ACL 2023**]

[C.3] **Vārta: A Large-Scale Headline-Generation Dataset for Indic Languages** [🔗]
Rahul Aralikatte, Ziling Cheng, Sumanth Doddapaneni, Jackie Chi Kit Cheung
Findings of 61^{th} Annual Meeting of the Association for Computational Linguistics [**ACL 2023**]

[C.2] **Effectiveness of Mining Audio and Text Pairs from Public Data for Improving ASR Systems for Low-Resource Languages** [🔗]
Kaushal Santosh Bhogale, Abhigyan Raman, Tahir Javed, Sumanth Doddapaneni, Anoop Kunchukuttan, Pratyush Kumar, Mitesh M. Khapra
48^{th} IEEE International Conference on Acoustics, Speech, and Signal Processing [**ICASSP 2023**]

[C.1] **Towards Building ASR Systems For The Next Billion Users** [🔗][Code]
Tahir Javed, Sumanth Doddapaneni, Abhigyan Raman, Kaushal Santosh Bhogale, Gowtham Ramesh, Anoop Kunchukuttan, Pratyush Kumar, Mitesh M. Khapra
36^{th} AAAI Conference on Artificial Intelligence [**AAAI 2022**]

[P.1] **A Primer on Pretrained Multilingual Language Models** [🔗]
Sumanth Doddapaneni*, Gowtham Ramesh*, Mitesh M. Khapra, Anoop Kunchukuttan, Pratyush Kumar
Under Review [**ArXiv**]

Honours and Grants

Google PhD Fellowship 2023 (List of Recipients)

Google Research Selected to attend the Google Research Week 2022, 2023

Naver Labs and Univ. Grenoble Alpes Selected to attend the ALPS Winter School 2022

TFRC Grant Received TPU Research credits to carry out work on LMs 2022

MSR Travel Grant Received Microsoft Research Travel grant to attend ACL 2022

Robert Bosch Centre Received the Post Baccalaureate Fellowship to work on interdisciplinary AI 2021

Select Research Projects

Multilingual Summarisation [🔗][Code] Nov'22 - Mar'23
Advisors: Dr. Rahul Aralikatte, Dr. Jackie Chi Kit Cheung
- Studying the effect of pretraining in multilingual sumamrisation
- Pretraining and fine-tuning generative models for abstractive summarisation
- Accepted to Findings of ACL 2023

Multilingual Language Modeling [🔗][Code] Oct'21 - Jan'23
Advisors: Dr. Mitesh M. Khapra, Dr. Anoop Kunchukuttan, Dr. Pratyush Kumar
- Building Large scale monolingual corpora and Language Models for Indian Languages
- Building strong testsets to evaluate the zero-shot generalisation of the models
- Studying the various objectives and data regimes that improve zero-shot generalisation of the models
- Understanding the efficacy of adapters in zero-shot generalisation of the LMs
- Work published at ACL 2023

Speech Recognition [Try the Model][Code] Jun'21 - Feb'22
Advisors: Dr. Mitesh M. Khapra, Dr. Anoop Kunchukuttan, Dr. Pratyush Kumar
- Building state-of-the-art models for Automatic Speech Recognition for Indian languages
- Understanding the various effects of LM on downstream ASR task
- Accepted as a long paper at AAAI 2022

Machine Translation [Try the model][Code] Feb'21 - Oct'21

Advisors: Dr. Mitesh M. Khapra, Dr. Anoop Kunchukuttan, Dr. Pratyush Kumar

- Built state of the art translation model for Indian languages to English and *vice versa*
- Created the largest bilingual corpora (∼50M pairs) across 11 languages for NMT training.
- Work published in TACL (Volume 10, 2022)

Academic Service

Reviewer NAACL'24, EMNLP'23 (Best Reviewer), ACL'23; ACL Rolling Review 2022, 2023
Volunteer EACL'21, ICML'21, NeurIPS'21, EMNLP'21, ACL'22, EMNLP'22

Talks & Volunteering Roles

Invited Talk, Google Research India *Speaker* Feb 2023

- Talk on "Building Natural Language Understanding (NLU) capabilities for Indic languages"

Invited Talk, Swiggy Data Science *Speaker* Jan 2022

- Talk on "Towards Building ASR Systems for the Next Billion Users"

Organizer at NLP with Friends *Organizer* Jan 2023 - Present

NLP Reading Group, AI4Bharat *Organizer* Jan 2022 - Dec 2022

References

- Dr. Mitesh M. Khapra ..... *Associate Professor, IIT Madras, India* [🌐]
- Dr. Anoop Kunchukuttan ..... *Senior Applied Researcher, Microsoft AI and Research, India* [🌐]
- Dr. Pratyush Kumar ..... *Senior Researcher, Microsoft Research, India* [🌐]
- Dr. Raj Dabre ..... *Researcher, NICT, Japan* [🌐]
- Dr. Rahul Aralikatte ..... *Postdoctoral Fellow, MILA & Visiting Researcher, Google* [🌐]