Pratik JOSHI

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EDUCATION

May 2023	**CARNEGIE MELLON UNIVERSITY - SCHOOL OF COMPUTER SCIENCE**, Pittsburgh, PA, USA
	Master of Science in Intelligent Information Systems, Language Technologies Institute | CGPA : 4.12/4.0
	Relevant courses : Multimodal ML, Advanced NLP, Convex Optimization, Multilingual NLP, On-Device ML

Jun. 2019	**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE PILANI**, Goa, India
	Bachelor of Engineering (Honors) in Computer Science | CGPA : 8.44/10.00
	Relevant courses : Machine Learning, Neural Networks, Artificial Intelligence, Data Structures and Algorithms

SKILLS

Languages	Python, C/C++, Shell Scripting, MySQL, Prolog (intermediate)
Toolkits	PyTorch, JAX, Keras, Tensorflow, Matplotlib, Android Studio (intermediate)

RELEVANT EXPERIENCE

Aug. 2022 May. 2022	**DEEPMIND**, Mountain View, CA
	Research Engineer
	> Core contributor to Google Gemini, working on improving code capabilities and evaluations.
	> Large language models for code generation, implementing and writing software for machine learning pipelines.

Aug. 2022 May. 2022	**DEEPMIND**, Mountain View, CA
	Research Engineer Intern
	> Trained and implemented large language models for code generation (AlphaCode style models), aiming for deployment in production IDEs.
	> Explored multi-task training and reinforcement learning objectives for sampling and re-ranking.

Jul. 2023 Sep. 2021	**CARNEGIE MELLON UNIVERSITY**, Pittsburgh, PA
	Research Assistant | Advisor : Prof. Louis Philippe Morency, Mentor : Chaitanya Ahuja
	> Devised novel technique to prevent catastrophic forgetting and enable continual learning for multimodal gesture generations with GANs. [**ICCV'23**]
	> Designing meta-learning strategies for data-scarce multimodal task scenarios.
	> Implemented custom replay-based continual learning techniques for generative models for image generation.

Sep. 2020 Aug. 2021	**GOOGLE RESEARCH**, Bangalore, India
	Research Engineer (via Optimum Infosystem) | Manager : Dr. Partha Talukdar
	> Developed entity-aware translation architecture for multilingual subtitle generation of technical videos ; received 9/10 score from manual raters and translated 100 hours of video content for an educational organization (NPTEL).
	> Trained neural models for temporal parsing of multilingual queries and created benchmark for model evaluation.

Aug. 2019 Aug. 2020	**MICROSOFT RESEARCH**, Bangalore, India
	Research Intern | Managers : Dr. Kalika Bali, Dr. Monojit Choudhury
	> Probed natural language inference capabilities of pre-trained language models (BERT,RoBERTa). [**CoNLL'20**]
	> Analyzed resource disparity for 2500 languages, and published strongly cited paper (200+ citations). [**ACL'20**]

Jul. 2018 Dec. 2018	**MICROSOFT RESEARCH**, Bangalore, India
	Research Intern | Managers : Dr. Navin Goyal, Dr. Monojit Choudhury
	> Implemented neural semantic parsing techniques for converting natural language queries to code (Regex,SQL), which performed competitively with state-of-the-art techniques.

SELECTED PUBLICATIONS

> Gemini Team Google : ..., **Pratik Joshi**,... "Gemini : A Family of Highly Capable Multimodal Models", [pdf], Coverage : Google Blog, Tech Crunch, Wired Magazine, NY Times

- Pratik Joshi*, Sebastin Santy*, Amar Budhiraja*, Kalika Bali, Monojit Choudhury, "The State and Fate of Linguistic Diversity and Inclusion in the NLP World", **ACL'20** [pdf],[website], Coverage : US FTC Commissioner Remarks, NLP with Friends, NLP Beyond English, Quartz, LacunaFund, SIGTYP Newsletter
- Chaitanya Ahuja, **Pratik Joshi**, Ryo Ishii, Louis-Philippe Morency, "Continual Learning for Personalized Co-speech Gesture Generation", **ICCV'23** [pdf][website]
- Pratik Joshi*, Somak Aditya*, Aalok Sathe*, Monojit Choudhury, "TaxiNLI : Taking a Ride up the NLU Hill", **CoNLL'20** [pdf],[website][code]
- **Pratik Joshi**, Christain Barnes, Sebastin Santy, Simran Khanuja, Sanket Shah, Anirudh Srinivasan, Satwik Bhattamishra, Sunayana Sitaram, Monojit Choudhury and Kalika Bali,"Unsung Challenges of Building and Deploying Language Technologies for Low Resource Language Communities", **ICON'19** [pdf][slides]
- Basil Abraham, Danish Goel, Divya Siddarth, Kalika Bali, Manu Chopra, Monojit Choudhury, **Pratik Joshi**, Preethi Jyoti, Sunayana Sitaram and Vivek Seshadri ,"Crowdsourcing Speech Data for Low-Resource Languages from Low-Income Workers", **LREC'20** [pdf], Coverage : Indian Express, Microsoft Stories
- Sanket Shah,**Pratik Joshi**,Sebastin Santy,Sunayana Sitaram,"CoSSAT : Code-Switched Speech Annotation Tool", **EMNLP'19** [pdf]
- Anshul Bawa, Pranav Khadpe, **Pratik Joshi**, Kalika Bali and Monojit Choudhury,"Do Multilingual Users Prefer Chat-bots that Code-mix ? Let's Nudge and Find Out !", **CSCW'20** [pdf]

Selected Work Mentions and Media Coverage

01/2024	**Tech Crunch** on *"Google Gemini : Everything you need to know about the new generative AI platform"*, [link]
12/2023	**The New York Times** on *"Google Updates Bard Chatbot With 'Gemini' A.I. [...]"*, [link]
12/2023	**BBC** on *"Google claims new Gemini AI 'thinks more carefully' "*, [link]
12/2023	**CNN** on *"Google launches Gemini, its most-advanced AI model yet [...] "*, [link]
05/2023	**Centre for Democracy and Technology** on *"Lost in Translation : Large Language Models in Non-English [...]"*, [link]
01/2023	**Indian Express** on *"How Microsoft's Project ELLORA is helping small languages like Gondi become [...]"*, [link]
01/2023	**Microsoft Stories** on *"Microsoft Research project helps languages survive — and thrive"*, [link]
08/2022	**U.S. Federal Trade Commission (FTC)** on *"Who is being left behind ? Enforcement Priorities for a Tech [...]"*, [link]
04/2022	**The Gradient** on *"New Technology, Old Problems : The Missing Voices in Natural Language Processing"*, [link]
04/2020	**SIGTYP** on *"Recent Developments in Computational Typology & Multilingual NLP"*, [link]

Talks and Panels

2023	**Centre for Democracy and Technology Panel** on "The Nuts and Bolts (and Nuances) of Foundation Models", *Remote* [Abstract] [Link]
2021	**Google Research** on "NLP for the Long Tail", *Remote*
2020	**NLP with Friends** on "State and Fate of Linguistic Diversity in the NLP World", *Remote* [Abstract][Link]

Academic Service and Reviewing

Reviewer	ICLR'24
Subreviewer	LREC'20, ACL'20, ICON'19

Teaching and Mentoring

May 2018 Jan' 2018	**Machine Learning (BITS F464)	Birla Institute of Technology and Science Pilani**, Goa, India *Teaching Assistant	Course Instructor : Prof. Ashwin Srinivasan* - In charge of the design and supervision of the lab component of course. - Taught implementation of concepts such as regression, classification, clustering, hyperparameter optimization, ensemble learning. Introduced students to libraries such as Scikit-Learn, Numpy, Pandas, Keras. - Created assignments and final evaluative project for students, in Python. [course material]

Selected Projects

Semantic Question-Answering System   BITS Pilani | Jun. 2019
- Created Prolog implementation of (Raphael 1963), with commonsense reasoning using relational entity graphs. [slides][code]