Sagar Gubbi

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www.github.com/s-gv

Technical Interests

Inclusive Language Technology for Reaching Global Users

Education

2015 – 2021 (January – March)
Ph.D. Electrical and Communication Engineering,
Indian Institute Of Science, Bangalore.
Advisor: Prof. Bharadwaj Amrutur

2011 – 2013 (August – July)
M.E. Electrical and Communication Engineering,
Indian Institute Of Science, Bangalore.
GPA 7.5/8 (Rank 1)

2007 – 2011 (September – June)
B.E. Electronics and Communication Engineering,
Sri Jayachamarajendra College of Engineering, Mysore, India.
GPA 9.8/10 (Rank 1)

Employment

2021 – now (August)
Postdoctoral Researcher,
Google Research India, Bangalore,
Advisor: Dr. Partha Talukdar.
My research focus was on multilingual, multimodal models with the aim of building inclusive and responsible language technologies for the next billion users. I worked on methods to synthesize locale-specific adversarial queries using LLM pipelines for automated red teaming of GenAI models for cold-start languages and locales. This was used for evaluating Bard i18n prior to launch across 40 locales. I also worked on UI grounded instruction following for helping novice internet users get things done on the phone by transforming FAQ pages to step-by-step demonstrations overlaid on the UI.

2021 – 2021 (April – August)
Consultant,
ARTPark, Bangalore.
I was involved in setting up a simulation framework for training robot controllers using reinforcement learning. I also contributed to our entry to the AVATAR X-Prize robot telepresence competition by reducing video streaming latency.

2013 – 2014 (August – December)
Technical Associate,
Robert Bosch Centre for Cyber-Physical Systems, Bangalore.
I was involved in the design of an ambulatory electrocardiograph for neonatal monitoring using an embedded bluetooth low energy platform. I also built an Android app that visualizes the ECG signal and implemented an adaptive filter that reduced power-line noise by 24 dB.

Publications

S. Gubbi, P. Talukdar, and S. Narayanan, "**UGIF-Dataset: A New Dataset for Cross-lingual, Cross-modal Sequential actions on the UI**," *Annual Conference of the North American Chapter of the Association for Computational Linguistics*, 2024 (under review).

S. Gubbi, R. Upadrashta, and B. Amrutur, "**Translating Natural Language Instructions to Computer Programs for Robot Manipulation**," *IEEE International Conference on Intelligent Robots and Systems*, 2021.

S. Gubbi, A. Biswas, R. Upadrashta, V. Srinivasan, P. Talukdar, and B. Amrutur, "**Spatial Reasoning from Natural Language Instructions for Robot Manipulation**," *IEEE International Conference on Robotics and Automation*, 2021.

S. Gubbi, R. Upadrashta, S Kolathaya, and B. Amrutur, "**Multi-Instance Aware Localization for End-to-End Imitation Learning**," *IEEE International Conference on Intelligent Robots and Systems*, 2020.

S. Gubbi, R. Upadrashta, S Kolathaya, and B. Amrutur, "**Teaching Robots Novel Objects by Pointing at Them**," *IEEE International Conference on Robot and Human Interactive Communication*, 2020.

S. Tirumala, S. Gubbi, K. Paigwar, A. Sagi, A. Joglekar, S. Bhatnagar, A. Ghosal, B. Amrutur, and S. Kolathaya, "**Learning Stable Manoeuvres in Quadruped Robots from Expert Demonstrations**," *IEEE International Conference on Robot and Human Interactive Communication*, 2020.

S. Gubbi*, S Kolathaya*, and B. Amrutur,"**Imitation Learning for High Precision Peg-in-Hole Tasks**," *IEEE International Conference on Control, Automation and Robotics*, 2020.

S. Gubbi and B. Amrutur, "**One-Shot Object Localization Using Learnt Visual Cues via Siamese Networks**," *IEEE International Conference on Intelligent Robots and Systems*, 2019.

S. Gubbi and B. Amrutur, "**Scene text detection for augmented reality: character bigram approach to reduce false positive rate**," *CSI Transactions on ICT*, 2018.

S. Gubbi, A. Gupta and C. S. Seelamantula, "**How much can a Gaussian smoother denoise?**," *Proceedings of the Tenth Indian Conference on Computer Vision, Graphics and Image Processing*, 2016.

S. Gubbi and B. Amrutur, "**Adaptive Pulse Width Control and Sampling for Low Power Pulse Oximetry**," *IEEE Transactions on Biomedical Circuits and Systems*, 2015.

S. Gubbi and B. Amrutur, "**All Digital Energy Sensing for Minimum Energy Tracking**," *IEEE Transactions on VLSI Systems*, 2015.

H. Rao, D. Saxena, S. Kumar, S. Gubbi, B. Amrutur, P. Mony, P. Thankchan, K. Shankar, S. Rao and S. R. Bhat, "**Low power remote neonatal temperature monitoring device**," *BIODEVICES, 7th International Conference on Biomedical Electronics and Systems*, 2014.

Skills

ML	LLM pipelines in Python, annotation UI
Web	Webapps in Python (Django)
Mobile	Android libraries and apps in Java
Gaming	Indie games in C

Awards and Academic Honors

- IBM Watson Student Showcase competition, 2015 (my project on predicting if a StackOverflow question is fact/opinion based was among the top 5 cognitive apps submitted to the competition).

- Visveswaraya PhD fellowship, 2015-2020 (awarded by MeitY, Government of India to PhD students in the areas of Electronics System Design and IT enabled services).
- Indian Institute Of Science Alumni Medal for academic achievement, 2013 (awarded to the first rank holder in the M.E. Microelectronics stream).
- Winner of the Cadence Design Contest, 2013 (my design was placed first among 133 entries from 45 academic institutions across India).
- Ministry of Human Resource Development Graduate research scholarship, 2011-2013.
- B.S. Keshav Kishan Memorial Endowment Medal for academic achievement, 2011 (awarded to the first rank holder in the B.E. Electronics and Communications stream).
- All India Rank 3 in GATE 2011 (Graduate Aptitude Test for Engineering is taken by over 100,000 engineering graduates in India to get into graduate schools).
- Rank 2 in K-CET 2007 (Karnataka Common Entrance Test is taken by over 40,000 high school students in the state of Karnataka to enter professional undergraduate programs).

Selected Press

- **Times Of India** (2015): "IISc researchers devise all-digital circuits." Aparajita Ray, *Times Of India,* May 18, 2015.
- **Indian Express** (2015): "Running out of smartphone battery? A new digital circuit could fix all of that." Amitabh Sinha, *Indian Express,* June 7, 2015.
- **Education Times** (2015): "The digital sous chef." Rahat Bano, *Education Times,* Jan 19, 2015.

References

Available upon request.