Sashank Gondala

📱 +1(703)712-2706 • ✉ sgondala@gatech.edu • 🌐 sgondala.github.io/

Education

Georgia Institute of Technology   **Atlanta, Georgia**

Master of Science, Computer Science with specialization in Machine Learning; **GPA 3.8/4**   May 2021

- MS Advisor: *Prof. Devi Parikh*
- Conducting research on Vision and Language Navigation, Image Captioning (More on Page 2)
- Selected Coursework: Deep Learning, Deep Learning for Text, Reinforcement Learning, Machine Learning, Machine Learning for Trading, Graduate Algorithms, Computation and Brain

Indian Institute of Technology Bombay   **Mumbai, India**

Bachelor of Technology, Computer Science and Engineering   May 2016

- IIT-JEE 2012 **All India Rank 14** out of 500k candidates
- **All India Rank 8** in Nationwide Education and Scholarship Test 2014. Received scholarship for the same
- Selected Coursework: Computer Graphics, Operating Systems, Compilers, Digital Geometry Processing

Publications

Error-driven Pruning of Language Models for Virtual Assistants   **ICASSP 2021**

Sashank Gondala*, Lyan Verwimp*, Ernest Pusateri, Manos Tsagkias, Christophe Van Gysel

Work done as a Research Intern at Apple

Work Experience

Apple (Cupertino, CA)   **Jun 2020 - Aug 2020**

Machine Learning Research Internship (AI/ML)

- Worked as a research intern in the Language Modeling team
- Explored ways to prune language model of a speech recognition system without affecting it's accuracy
- Obtained **10% reduction in LM size** with negligible increase in WER
- Work published at **ICASSP 2021**

Decentralized CDN Startup (San Francisco, CA)   **Feb 2018 - Dec 2018**

Co-founder

- **Co-founded a startup** to provide decentralized CDN services by sharing the spare bandwidth and hard drive space of Internet users over blockchain.
- Worked on various aspects of startup ranging from hiring and meeting investors to writing technical whitepaper and product development
- IP developed include a prototype to support HLS video streams and a whitepaper that describes the challenges and solutions based on the SOTA techniques including Service Certificates, Probabilistic Micropayments, etc.
- The startup was eventually discontinued due to a lack of product-market fit.

Oracle HQ (Redwood City, CA)   **Jul 2016 - Aug 2019**

Senior Member of Technical Staff

- **Improved sorting time** of a C++ in-memory query engine **by 15%** by identifying bottlenecks and enhancing the code to use compile time code generation techniques (C++11 Variadic templates).
- **Improved query run time** of benchmark set **by 20%** by enhancing caching algorithm logic modifying cache seed logic to cache the data post relevant processing rather than raw data.
- Introduced a new query syntax to enable auto discovery of backend tables bypassing the current requirement of manual import. **Reduced each ongoing release time by a few weeks**. Used YACC, LEX, and C++.
- Improved cache hit rate by changing the internal load balancer logic to create a deterministic server-user mapping instead of a session based allocation.

Amazon   **May 2015 – Jul 2015**

Software Developer Internship

- Worked with Amazon Custom, the team that deals with customized products
- Built an API test suite for services of Amazon Custom using TestNG in Java.

Research Projects

Vision and Language Navigation — Sep 2020 - Current
- Building an agent for the 'Vision-and-Language Navigation in Continuous Environment' (VLN-CE) task.
- The task is to train an agent to follow navigation instructions in a simulated house. The agent gets only the first-person view of the environment and navigates using low-level actions
- Building a hierarchical planner + controller architecture - planner predicts an intermediate waypoint and controller navigates to the waypoint. This improves sample complexity and overcomes problems with long-range planning
- Incorporating semantic + free space maps for better grounding of waypoint predictions

Image Captioning without reference captions — Jan 2020 - May 2020
- Led a project at Prof. Devi Parikh and Prof. Dhruv Batra's lab to generate captions for images containing novel objects (i.e., objects without paired training data) using non-paired data
- Modeled a CIDEr predictor using a pretrained multi-modal transformer to predict the CIDEr score without needing access to reference captions
- Using VIFIDEL, SLOR, and predicted CIDER values as rewards, trained an image captioning model to optimize for these metrics using policy-gradient methods (PPO)

Other Projects

Question Answering using Deep Learning — Oct 2019 - Dec 2019
- Worked on various Question Answering tasks - Google's Natural Question Answering and Stanford's SQuAD 2.0
- Implemented approaches such as LSTM based co-attention models, augmented BERT models, Ensembles, etc.

Neural Machine Translation — Mar 2019 - Apr 2019
- Implemented a sequence-to-sequence (Seq2Seq) network in PyTorch to translate Spanish text to English
- Used a Bidirectional LSTM with multiplicative attention as Encoder and a Unidirectional LSTM as Decoder

ML trading bot — Mar 2019 - Apr 2019
- Created a random forests-based trading algorithm which takes in the stock price and market indicators to predict the movement of a stock

OpenAI Agents — Jan 2019 - Feb 2019
- Trained agents to solve several of the OpenAI challenges, using a mix of Reinforcement Learning (RL) techniques such as Q-Learning, DQN, DDQN, and Policy Iteration as a part of Reinforcement Learning course

Scholastic Achievements

- Secured **All India Rank 14** in IIT-JEE out of 500k test-takers — **2012**
- Secured **All India Rank 59** in EAMCET out of 300k test-takers — **2012**
- Obtained **7th position** in State Mathematics Olympiad (APAMT) — **2009**
- Was placed **National Top 1%** in several Astronomy, Physics, and Junior Science Olympiads — **2010-12**
- Attended (**Top 35 students across India**) Indian National Astronomy Olympiad(INAO) and Indian National Junior Science Olympiad(INJSO) Orientation-cum-Selection Camps held by HBCSE — **2010**

Teaching Assistantships

- CS 7643 - Deep Learning, Georgia Tech — Spring 2021
- CS 7643 - Deep Learning, Georgia Tech — Fall 2020
- CS 8803 - Systems for Machine Learning Research, Georgia Tech — Spring 2020
- CS 7641 - Machine Learning, Georgia Tech — Fall 2019
- CS 101 - Intro to Computer Programming, IIT Bombay — Spring 2016

Technical Skills

- **Languages:** C++ (Expert) | Python (Expert) | Java (Intermediate) | Bash (Intermediate)
- **Others:** Scikit-learn (Expert) | PyTorch (Expert) | TensorFlow (Intermediate) | SQL (Intermediate)