Srinivas Venkattaramanujam

514-623-7673 • Montreal, Canada H2W 1V2 • Email: srinivas.vr.edu@gmail.com
github.com/srinivr • **linkedin**.com/in/srinivas-venkattaramanujam-95560a62

EDUCATION

MILA & MCGILL UNIVERSITY — Montreal, Canada
Master of Computer Science - Thesis (GPA: 3.65/4) — Sep 2017 - May 2020

THIAGARAJAR COLLEGE OF ENGINEERING — Madurai, India
B.Tech in Information Technology — Aug 2010 - May 2014

RESEARCH EXPERIENCE

MILA & MCGILL UNIVERSITY — Montreal, Canada
Research Assistant — Jan 2018 - Present
• Working on Reinforcement Learning and Representation Learning with **Prof. Doina Precup**.
• Primary research objective is to eliminate the need for domain knowledge required to build RL agents.

SPEECH LAB, IIT MADRAS — Chennai, India
Project Associate — Feb 2016 - Apr 2017
• Worked on Automatic Speech Recognition (ASR) with **Prof. Umesh Srinivasan**.
• Used Deep Learning to build Automatic Speech Recognition (ASR) systems and investigated the use of distillation for cross-lingual transfer in ASR for resource constrained languages.

PROFESSIONAL EXPERIENCE

PICKYOURTRAIL.COM — Chennai, India
Senior Development Engineer — Jul 2015 - Feb 2016
• Developed several APIs using Java and MongoDB for a personalized itinerary planning tool.
• Developed an Android app to display itineraries for individual customers.

SHOPPERLANE — Chennai, India
Owner — Feb 2015 - Jul 2015
• Developed a mobile application to search for products and goods in neighbourhood stores.
• Developed a suite of software for inventory management, reporting and billing.

VERIZON DATA SERVICES INDIA — Chennai, India
Software Engineer — Aug 2014 - Feb 2015

PUBLICATIONS

• **Venkattaramanujam, S.**, Crawford, E., Doan, T., & Precup, D. (2020, February). **Self Supervised Learning Of Distance Functions For Goal Conditioned Reinforcement Learning**. *Preprint.* **[Paper]**
We propose an approach to learn state embeddings that are useful for goal-conditioned policies. We discuss the conditions that guarantee the existence of this embedding space and propose a practical approach to approximate it.

PROJECTS

• **dqn-pytorch-lib**, an implementation of DQN and n-step DQN using **PyTorch**. Implemented the TreeQN architecture and the reproduced the results. The implementation supports modular addition of auxiliary losses such as reward prediction errors, state prediction errors and so on.
• **tf-kaldi**, a binding between Tensorflow and Kaldi for ASR. The DNN component of the acoustic model is implemented in Tensorflow whereas the feature extraction and decoding is handled using Kaldi.
• **kaldi-long-audio-alignment**, a toolkit to split a long audio and the corresponding transcription into multiple non-overlapping shorter segments. The correct transcription for the shorter audio segments are automatically determined from the transcription of the long audio.
• **fast-speech-transcriber**, a tool to enable easy transcription of audio files. The tool automatically loads the audio files in a given directory and provides controls to control audio playback and to navigate the audio files. The transcriptions are saved automatically. The tool uses a dictionary to provide auto-complete suggestions as the words are being typed.
• **A Guided tour of 'Metrics for MDPs with Infinite State Spaces'** (theory), provides the mathematical background of and the explanation of the proofs in *Metrics for MDPs with Infinite State Spaces* - a state aggregation method for Markov Decision Processes. The state aggregation is performed using the extension of the notion of bisimulation to a metric in continuous state spaces, called the bisimulation metric.

SKILLS

• **Programming:** Java, Python, C, SQL
• **Frameworks:** PyTorch, Kaldi, Android, Redis, Elasticsearch

GRADUATE COURSES

Machine Learning, Probabilistic Graphical Models, Reinforcement Learning, Matrix Computations, Mathematical Foundations of Machine Learning and Representation Learning