# Srinivas Venkattaramanujam

514-623-7673 • Montreal, Canada H2W 1V2 • Email: srinivas.vr.edu@gmail.com

srinivr.github.io • linkedin.com/in/srinivas-venkattaramanujam-95560a62

## EDUCATION

**MILA & McGill University**                                             Montreal, Canada
*Master of Computer Science - Thesis*                                    Sep 2017 - Aug 2020

**Thiagarajar College of Engineering**                                   Madurai, India
*B.Tech in Information Technology*                                       Aug 2010 - May 2014

## SKILLS

**Areas**

Deep Learning, Reinforcement Learning, Automatic Speech Recognition, Backend development (Java/Servlets/JSP), Android development, Mathematics - Real Analysis, Linear Algebra, Probability and some Topology

**Languages & Frameworks**

PyTorch, Kaldi, OpenFST, SRILM, Java, Python, C, MySQL, Redis, Elasticsearch, Android, Git

## 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 by 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.

## SOFTWARE ENGINEERING EXPERIENCE

**Pickyourtrail.com**                                                    Chennai, India
*Senior Development Engineer*                                            Jul 2015 - Feb 2016
• Developed several APIs 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 an Android application to search for products in neighbourhood stores.
• Developed a suite of web applications for inventory management, reporting and billing.

**Verizon Data Services India**                                          Chennai, India
*Software Engineer*                                                    Aug 2014 - Feb 2015
• Worked on the backend development of a quoting tool.

## 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.

## GRADUATE COURSES

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