

# Srinivas Venkattaramanujam

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## EDUCATION

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<b>MILA &amp; McGill University</b> <i>PhD in Computer Science</i>	Montreal, Canada Starting in Sep 2020
<b>MILA &amp; McGill University</b> <i>Master of Computer Science - Thesis</i>	Montreal, Canada Sep 2017 - May 2020
<b>Thiagarajar College of Engineering</b> <i>B.Tech in Information Technology</i>	Madurai, India Aug 2010 - May 2014

## RESEARCH EXPERIENCE

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<b>MILA &amp; McGill University</b> <i>Research Assistant</i>	Montreal, Canada Jan 2018 - Present
<ul style="list-style-type: none"><li>• Working on Reinforcement Learning and Representation Learning with <a href="#">Prof. Doina Precup</a>.</li><li>• Primary research objective is to eliminate the need for domain knowledge required to build RL agents.</li></ul>	
<b>Speech Lab, IIT Madras</b> <i>Project Associate</i>	Chennai, India Feb 2016 - Apr 2017
<ul style="list-style-type: none"><li>• Worked on Automatic Speech Recognition (ASR) with <a href="#">Prof. Umesh Srinivasan</a>.</li><li>• 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.</li></ul>	

## PROFESSIONAL EXPERIENCE

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<b>Pickyourtrail.com</b> <i>Senior Development Engineer</i>	Chennai, India Jul 2015 - Feb 2016
<ul style="list-style-type: none"><li>• Developed several APIs using Java and MongoDB for a personalized itinerary planning tool.</li><li>• Developed an Android app to display itineraries for individual customers.</li></ul>	
<b>ShopperLane</b> <i>Owner</i>	Chennai, India Feb 2015 - Jul 2015
<ul style="list-style-type: none"><li>• Developed a mobile application to search for products and goods in neighbourhood stores.</li><li>• Developed a suite of software for inventory management, reporting and billing.</li></ul>	
<b>Verizon Data Services India</b> <i>Software Engineer</i>	Chennai, India Aug 2014 - Feb 2015

## PUBLICATIONS

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- **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

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- **dqn-pytorch-lib**, an implementation of DQN and n-step DQN using **PyTorch**. Implemented the TreeQN architecture and 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

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

## GRADUATE COURSES

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