Aanchan Mohan, PhD
Burnaby, BC

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Immigration status : **Canadian citizen**

Work Experience

Assistant Teaching Professor, Northeastern University, Vancouver, Canada   *Dec 2022-Present*
Summary: Teaching core courses on the MSCS Curriculum. Research topics in speech recognition and natural language processing.

Lead Data Scientist, Global Relay, Vancouver, Canada   *Mar 2021-Aug 2022*
Summary: Leading the development of **automatic speech recognition** and **natural language processing** solutions for communications archiving.
* Worked with key stakeholders to define and execute the road-map for productionizing speech recognition and natural language processing solutions
* Hired and mentored key personnel in software development, research and management roles
* Made key architectural and code contributions as the first hire in the speech recognition team

Lecturer, Northeastern University-Vancouver Campus, Canada   *Nov 2020-Present*
Summary: Teaching graduate level courses and workshops
* Taught **CS-6140-Machine Learning** in Fall 2021 to Masters students.
* Facilitated workshops for small and medium enterprises (SMEs) looking to adopt machine learning and artificial intelligence

Director of Technology, Synaptitude Brain Health, Vancouver, Canada   *Oct 2017-Feb 2021*
Summary: Team lead for a web-platform and a conversational agent that integrates with wearable devices to give personalized recommendations for brain health
* Joined Synaptitude as the 1st technical hire and defined the software stack and architecture for the Synaptitude Brain Health Platform
* Worked closely with the CEO and neuroscienists, wrote inital backend code, hired product management and hired a software development team to help the CEO achieve business goals
* Worked with doctors in geriatrics, neuroscience and dietetics to realize a framework for a longitudinal study on brain health and aging at West China Hospital, Chengdu, Sichuan Province, China

Algorithm Engineer, Mio Global, Vancouver, Canada   *Sept 2016-Oct 2017*
Summary: Deep learning and Bayesian methods applied to physiological (accelerometer and heart-rate) signals.
* Researched, prototyped, developed and deployed the sleep detection algorithm based on Bayesian changepoint detection models on the Mio Slice.
* Researched, prototyped, developed and deployed a deep learning (convolutional neural network (CNN) feature extractor, recurrent neural network (RNN)) based system for activity/exercise recognition.
* Researched, prototyped, developed and deployed a deep learning (CNN, bi-directional RNN) system for blood pressure estimation.

Senior Research Scientist, Malaspina Labs, Vancouver, Canada   *Sept 2015-Sept 2016*
Summary: Phoneme recognition and keyword spotting using recurrent neural network architectures.
* Responsible for researching and prototyping a unique recurrent-neural network architecture for recognizing atomic speech sounds (phonemes) in high-noise environments.
* Responsible for maintaining core neural network training libraries (feed-forward and recurrent neural network architectures) for a commercial keyword spotting product.

Research Intern, Nuance Communications, Montreal, Canada   *Sept 2013-Mar 2014*
Summary: Speaker adaptation for an automatic speech recognition dictation system.

Education

McGill University, Montreal, QC, Canada

PhD, Electrical and Computer Engineering   *2010-2015*
  <u>Thesis</u>: Knowledge transfer by sharing acoustic model parameters for automatic speech recognition
  <u>Advisor</u>: Prof. R.C.Rose

Rutgers - The State University of New Jersey, New Brunswick, NJ, USA

M.S. Electrical and Computer Engineering   *2006-2008*
  <u>Thesis</u> : Combining speech recognition and speaker verification
  <u>Advisors</u>: Prof. L.R.Rabiner, Prof. A.E.Rosenberg

University of Mumbai, Mumbai, India

B.E. Electronics and Telecommunications Engineering   *2002-2006*
  <u>Research Project</u>: Error concealment in images using digital watermarking

Patents filed

"Recommending Content Items to Users of a Digital Magazine Server based on Topics Identified from Content of Content Items and User Interaction with Content Items", Arnab Bhadury, **Aanchan Mohan** .US Patent issued and assigned to Flipboard Inc., September 2019.

"Systems and Methods of Respiratory Analysis", Artem Galeev, Yan Vule, **Aanchan Mohan**. US Patent filed and assigned to Mio Global (Physical Enterprises Inc.), 2017.

"Phoneme-expert assisted speech recognition and re-synthesis", S.M. Kaskari, **Aanchan Mohan**, M.D.Fry, D.W.Neumann. US Patent filed and assigned to Malaspina Labs, Docket No.62527-50012US, 2016

"Generation of Phoneme-experts for speech recognition", S.M. Kaskari, **Aanchan Mohan**, M.D.Fry, D.W.Neumann. US Patent filed and assigned to Malaspina Labs, Docket No.62527-50013US, 2016

Publications

"Learning Content and Usage Factors Simultaneously to Reduce Clickbait", Arnab Bhadury, **Aanchan Mohan**, *Industrial Talk on Algorithms in Recommender Systems, RecSys, Vancouver* 2018

"Adversarial learning of raw speech features for domain invariant speech recognition", Aditay Tripathi, **Aanchan Mohan**, Saket Anand, Maneesh Singh.*IEEE International Conference in Acoustics, Speech and Signal Processing*, 2018.

"Multi-lingual speech recognition with low-rank multi-task deep neural networks", **Aanchan Mohan**, Richard C. Rose.*IEEE International Conference in Acoustics, Speech and Signal Processing*, 2015.

"Deep neural network trained with speaker representation for speaker normalization", Yun Tang, **Aanchan Mohan**, Richard C. Rose, Chengyuan Ma. *IEEE International Conference in Acoustics, Speech and Signal Processing, Florence, Italy*, 2014.

"Acoustic Modelling for speech recognition in Indian languages in an agricultural commodities task domain", **Aanchan Mohan**, Richard Rose, Sina Hamidi Ghelehjegh, S Umesh. *Special Issue on Processing Under-resourced Languages, Speech Communication, Elsevier*, 2014.

"Cross-lingual context sharing and parameter tying for multi-lingual speech recognition", **Aanchan Mohan**, Richard Rose. *IEEE Automatic Speech Recognition and Understanding Workshop, Olomouc, Czech Republic*, 2013.

"Subspace based acoustic modelling in Indian languages", **Aanchan Mohan**, S.Umesh, R.C.Rose, *IEEE Conference on Information Science, Signal Processing and their Applications, Montreal, Canada*, 2012

"Dealing with acoustic mismatch for training multilingual subspace Gaussian mixture models for speech recognition", **Aanchan Mohan**, S.H.Ghalehjegh, R.C.Rose. *IEEE International Conference in Acoustics, Speech and Signal Processing, Kyoto, Japan*, 2012.