

Website: voletiv.github.io[Google Scholar](#)[LinkedIn](#)[GitHub](#)

EDUCATION	<p>Mila, University of Montreal, Canada <i>Fall 2018 - present</i> PhD in Computer Science — <i>Supervisor</i>: Prof. Christopher Pal (A) 4.0 / 4.3</p> <p>Indian Institute of Technology (IIT), Kharagpur, India <i>2009 - 2014</i> Dual Degree (B.Tech. (H) + M.Tech.) in Electrical Engineering 8.44 / 10 with Master's specialization in Instrumentation and Signal Processing</p>
RESEARCH EXPERIENCE	<p>Research projects: Multi-resolution image generation using continuous normalizing flows [1]; Score-based generative models; Differentiable 3D simulation [4]; Self-supervised video prediction using Neural ODEs [6];</p> <p>University of Guelph, Canada — Visiting Researcher <i>Dec 2019 - present</i> • <i>Supervisor</i>: Prof. Graham Taylor</p> <p>Google, Mountain View, USA — Research Intern <i>Sep-Dec 2019</i> • <i>Team</i>: Google AI Perception, <i>Supervisors</i>: Bryan Seybold, Sourish Chaudhuri • Research on multimodal semi-supervised Active Speaker Detection in videos</p> <p>IIIT Hyderabad, India — Research Fellow; <i>Supervisor</i>: Prof. C. V. Jawahar <i>May 2017 - Aug 2018</i> • Synthesized educational videos in regional Indian languages by generating lips from audio • Full paper published at ICASSP 2019 [7], short paper published at CVPR 2018 Workshop</p>
OTHER EXPERIENCE	<p>Reviewer — NeurIPS 2021, ICCV 2021, CVPR 2021 (<i>Outstanding Reviewer</i>), ICLR 2020, NeurIPS 2020, ICML 2020, NeurIPS 2019, workshops</p> <p>OWCV 2021 (Canadian Computer Vision workshop), Canada — Organizer <i>Feb-Apr 2021</i></p> <p>GRAPHQUON 2020 (Canadian Computer Graphics workshop), Canada — Organizer <i>Oct-Dec 2020</i></p> <p>Blue Lion Labs, Canada — AI Advisor <i>Oct 2020 - present</i></p> <p>University of Montreal, Montreal, Canada — Teaching Assistant • Fundamentals of Machine Learning (IFT 6390) by Prof. Ioannis Mitliagkas <i>Sep-Dec 2020</i></p> <p>NextAI - Toronto, Canada — AI Scientist in Residence <i>Mar-Sep 2020</i></p> <p>IVADO/Mila Deep Learning School, Montreal, Canada — Teaching Assistant <i>Sep 9-13, 2019</i></p> <p>NextAI - Montreal, Canada — Scientist in Residence <i>Apr-Sep 2019</i></p> <p>Playment, Bengaluru, India — Computer Vision Consultant <i>Jan-Jun 2018</i> • Worked on semantic segmentation models for autonomous driving</p> <p>TalentSprint, Hyderabad, India — Mentor, Foundations of AI & ML <i>Jan-May 2018</i> • Designed and presented tutorials on machine learning, and mentored industry professionals</p>
RESEARCH PAPERS (RECENT)	<p>[1] “Multi-Resolution Continuous Normalizing Flows”, V. Voleti, C. Finlay, A. Oberman, C. Pal - <i>Preprint</i> [arXiv]</p> <p>[2] “Bias Mitigation of Face Recognition Models Through Calibration”, T. Salvador, S. Cairns, V. Voleti, N. Marshall, A. Oberman - <i>Preprint</i> [arXiv]</p> <p>[3] “Improved Predictive Uncertainty using Corruption-based Calibration”, T. Salvador, V. Voleti, A. Iannantuono, A. Oberman - <i>Preprint</i> [arXiv]</p> <p>[4] “gradSim: Differentiable simulation for system identification and visuomotor control”, K. M. Jatavallabhula, M. Macklin, F. Golemo, V. Voleti, L. Petrini, M. Weiss, B. Considine, J. Parent-Lévesque, K. Xie, K. Erleben, L. Paull, F. Shkurti, D. Nowrouzezahrai, S. Fidler - <i>ICLR 2021</i> [arXiv] [OpenReview]</p> <p>[5] “Learning to Combine Top-Down and Bottom-Up Signals in Recurrent Neural Networks with Attention over Modules”, S. Mittal, A. Lamb, A. Goyal, V. Voleti, M. Shanahan, G. Lajoie, M. Mozer, Y. Bengio - <i>ICML 2020</i> [arXiv]</p> <p>[6] “Simple Video Generation using Neural ODEs”, V. Voleti*, D. Kanaa*, S. E. Kahou, C. Pal - <i>NeurIPS 2019 Workshop</i> [pdf]</p> <p>[7] “Cross-Language Speech Dependent Lip-Synchronization”, V. Voleti*, A. Jha*, V. P. Namboodiri, C. V. Jawahar - <i>ICASSP 2019</i> [pdf]</p>

AWARDS, TALKS & OTHER EFFORTS	Dec 2020 - Microsoft Diversity Award for Doctoral Research	
	<ul style="list-style-type: none"> • Apr 2021 - “Training GANs by Solving ODEs” — Mila, Canada [slides] • Feb 2021 - “Score-based Generative Models” — Mila, Canada [slides] • Sep 2020 - “Continuous Normalizing Flows” — Mila, Canada [slides] • Jul 2020 - “GANs: the story so far” — Summer Symposium on AI Research, India [slides] [video] • Jul 2020 - “A brief tutorial on Neural ODEs” — Mila, Canada [slides] [video] • Apr 2020 - “Mathematics of Neural ODEs” — University of Guelph, Canada [slides] • Jan 2020 - “Simple Video Generation using Neural ODEs” — IIIT Hyderabad, India [slides] • May 2019 - Tutorial on “GANs” — AI for Social Good Summer Lab, Montreal • Jan 2019 - Released code for Self-Attention GAN in PyTorch, converting from TensorFlow code released by Google Brain [GitHub] • Oct 2018 - “BigGAN” — Mila, University of Montreal, Canada [slides] • Feb 2018 - “Image de-fencing using RGB-D data” — MPI Informatics, Saarbrücken, Germany [slides] • Feb 2018 - “Intuition behind LSTMs” at IIIT Hyderabad, India [slides] • Nov 2017 - Won the SMS Classification challenge, participated in the Video Action Recognition challenge in the 2017 Hack2Innovate hackathon in Bangalore, India • Aug 2017 - “Mathematics of back-propagation in multi-layer perceptrons” — GreyOrange Robotics, India, and at IIIT-Hyderabad, India [slides] • Jul 2017 - Attended summer schools on Computer Vision and Machine Learning at IIIT-Hyderabad <ul style="list-style-type: none"> – Stood 3rd in Computer Vision Summer School out of 120+ participants, rewarded full fee waiver – Stood 4th in Machine Learning Summer School out of 120+ participants, rewarded full fee waiver • Apr 2009 - Qualified JEE 2009 by IIT at 99.7 percentile, with All India Rank of 1330 (out of 384,977) 	
WORK EXPERIENCE	GreyOrange Robotics , Gurgaon, India — Image Processing Engineer	Feb 2016 - May 2017
	<ul style="list-style-type: none"> • Developed computer vision module for video processing in real time for warehouse automation • Research paper based on work is published by ACM at ICIDE 2017 	
	Airbus , Bengaluru, India — Associate Engineer	Jul 2014 - Feb 2016
	<ul style="list-style-type: none"> • Involved in development and integration of avionics systems for the long-range aircrafts family • Simulated signal-level modifications to the Flight Warning Computer, adopting standard avionics coding guidelines (DO-178B) 	
THESIS PROJECTS	<i>Supervisor:</i> Prof. Rajiv Sahay, Electrical Engineering, IIT KHARAGPUR, India	
	Master’s thesis — “De-fencing of Images using RGB-D Data”	2013 - 2014
	<ul style="list-style-type: none"> • Elimination of fence-like occlusions, and inpainting of images using RGB-D data • Nominated for Best M.Tech. Project Award among three departments (Electrical, Electronics, CS) • Research paper based on work is published in the proceedings of ICAPR 2015 	
	Bachelor’s thesis — “Identification of Bilabial Lip Closures in Audio and Video”	2012 - 2013
	<ul style="list-style-type: none"> • Measurement of synchronization between audio and video using bilabial cues in both modes 	
PAST RESEARCH INTERNSHIPS	KU Leuven , Belgium — <i>Supervisor:</i> Prof. Ingrid Verbauwhede, ESAT	Summer 2013
	<ul style="list-style-type: none"> • Designed arithmetic operations using Carry-Free Logic, simulated circuits in Xilinx 	
	IIT Kharagpur , India — <i>Supervisor:</i> Prof. Aurobinda Routray, Electrical Engineering	Summer 2012
	<ul style="list-style-type: none"> • Made a gesture recognition program in MATLAB using Hidden Markov Models 	
	Imperial College , UK — <i>Supervisor:</i> Prof. Peter Cheung, Electrical & Electronics	Summer 2011
	<ul style="list-style-type: none"> • Measured the relative power consumption among the LookUp Tables (LUTs) of an FPGA 	
SKILLS	C/C++, CUDA, HTML/CSS, Javascript, Keras, MATLAB, OpenCV, Python, PyTorch, Tensorflow	