

		Website: voletiv.github.io	Google Scholar	LinkedIn	GitHub
EDUCATION	Mila, University of Montreal, Canada	Fall 2018 - present (anticipated 08/2023)			
	PhD in Computer Science — Supervisor: Prof. Christopher Pal	(A) 4.0 / 4.3			
	Indian Institute of Technology (IIT), Kharagpur, India	2009 - 2014			
	Dual Degree (B.Tech. (H) + M.Tech.) in Electrical Engineering with Master's specialization in Instrumentation and Signal Processing	8.44 / 10			
RESEARCH EXPERIENCE	Deep learning for image, video, 3D: Video Prediction with Score-based Diffusion models; 3D human pose estimation; Image generation using Continuous Normalizing flows [2]; Video prediction with Neural ODEs [6]				
	Unity Technologies, Canada — MITACS Research Intern	October 2021 - present			
	• Team: Deep Pose, Unity Labs; Supervisor: Dr. Boris Oreshkin				
	• Research on 3D pose estimation from videos				
	University of Guelph, Canada — Visiting Researcher with Prof. Graham Taylor	Dec 2019 - present			
	Google, Mountain View, USA — Research Intern	Sep-Dec 2019			
	• Team: Google AI Perception, Supervisors: Bryan Seybold, Sourish Chaudhuri				
	• Research on multimodal semi-supervised Active Speaker Detection in videos				
	IIIT Hyderabad, India — Research Fellow; Supervisor: Prof. C. V. Jawahar	May 2017 - Aug 2018			
	• 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				
OTHER EXPERIENCE	Reviewer — CVPR 2022, ACML 2021, NeurIPS 2021, ICCV 2021, CVPR 2021 (Outstanding Reviewer), ICLR 2020, NeurIPS 2020, ICML 2020, NeurIPS 2019, workshops				
	Organizer — ICCV 2021 - Differentiable 3D Vision and Graphics workshop	Feb-Oct 2021			
	OWCV 2021 (Canadian Computer Vision workshop), Canada	Feb-Apr 2021			
	GRAPHQUON 2020 (Canadian Computer Graphics workshop), Canada	Oct-Dec 2020			
	Blue Lion Labs, Canada — AI Advisor	Oct 2020 - present			
	University of Montreal, Montreal, Canada — Teaching Assistant				
	• Fundamentals of Machine Learning (IFT 6390) by Prof. Ioannis Mitliagkas	Sep-Dec 2020			
	NextAI - Toronto, Canada — AI Scientist in Residence	Mar-Sep 2020			
	IVADO/Mila Deep Learning School, Montreal, Canada — Teaching Assistant	Sep 2019			
	NextAI - Montreal, Canada — Scientist in Residence	Apr-Sep 2019			
	Playment, Bengaluru, India — Computer Vision Consultant	Jan-Jun 2018			
	• Worked on semantic segmentation models for autonomous driving				
	TalentSprint, Hyderabad, India — Mentor, Foundations of AI & ML (inaugural program)	Jan-May 2018			
	• Designed and presented tutorials on machine learning, and mentored industry professionals				
RESEARCH PAPERS (RECENT)	[1] “MCVD: Masked Conditional Video Diffusion for Prediction, Generation, and Interpolation”, V. Voleti, A. Jolicoeur-Martineau, C. Pal - [arXiv]				
	[2] “Multi-Resolution Continuous Normalizing Flows”, V. Voleti, C. Finlay, A. Oberman, C. Pal - [arXiv]				
	[3] “FairCal : Fairness Calibration for Face Verification”, T. Salvador, S. Cairns, V. Voleti, N. Marshall, A. Oberman - ICLR 2022 [arXiv]				
	[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 - ICLR 2021 [arXiv]				
	[5] “Learning to Combine Top-Down and Bottom-Up Signals in RNNs with Attention over Modules”, S. Mittal, A. Lamb, A. Goyal, V. Voleti, M. Shanahan, G. Lajoie, M. Mozer, Y. Bengio - ICML 2020 [arXiv]				
	[6] “Simple Video Generation using Neural ODEs”, V. Voleti*, D. Kanaa*, S. E. Kahou, C. Pal - NeurIPS 2019 Workshop [arXiv]				
	[7] “Cross-Language Speech Dependent Lip-Synchronization”, V. Voleti*, A. Jha*, V. P. Namboodiri, C. V. Jawahar - ICASSP 2019 [pdf]				

AWARDS,
TALKS &
OTHER
EFFORTS

Dec 2020 - Microsoft Diversity Award for Doctoral Research

- *May 2022* - “MVCD: Masked Conditional Video Diffusion” — Mila, Canada
- *Feb 2022* - “Denoising Diffusion GANs” — Mila, Canada [slides]
- *May 2021* - Outstanding Reviewer at CVPR 2021
- *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 [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
 - 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*

- 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*

- 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

Supervisor: Prof. Rajiv Sahay, Electrical Engineering, IIT KHARAGPUR, India

Master’s thesis — “De-fencing of Images using RGB-D Data” *2013 - 2014*

- 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*

- Measurement of synchronization between audio and video using bilabial cues in both modes

PAST
RESEARCH
INTERNSHIPS

KU Leuven, Belgium — *Supervisor:* Prof. Ingrid Verbauwhede, ESAT *Summer 2013*

- Designed arithmetic operations using Carry-Free Logic, simulated circuits in Xilinx

IIT Kharagpur, India — *Supervisor:* Prof. Aurobinda Routray, Electrical Engineering *Summer 2012*

- Made a gesture recognition program in MATLAB using Hidden Markov Models

Imperial College, UK — *Supervisor:* Prof. Peter Cheung, Electrical & Electronics *Summer 2011*

- Measured the relative power consumption among the LookUp Tables (LUTs) of an FPGA

SKILLS

C/C++, CUDA, HTML/CSS, Javascript, Jax, Keras, MATLAB, OpenCV, Python, PyTorch, Tensorflow