

Krishna Murthy JATAVALLABHULA

Postdoctoral Associate | MIT

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Cambridge, MA [i USA](#)

EDUCATION

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|-----------|--|------------------|
| 2018-2022 | PhD. in Computer Science, Université de Montréal, Montréal, Canada. Thesis (letter) grade: exceptional . | GPA: 4.15/4.00 |
| 2015-2017 | MS by research in Computer Science and Engineering, <i>International Institute of Information Technology, Hyderabad, India</i> . | GPA: 10.00/10.00 |
| 2011-2015 | M.Sc. (Tech.) Information Systems (Bachelor's degree), <i>Birla Institute of Science and Technology (BITS), Pilani, India</i> . | GPA: 6.71/10.00 |

WORK

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| March 2022 Present | Postdoctoral associate MIT, (CoCoSci AND CSAIL), With Josh Tenenbaum and Antonio Torralba Multisensory and multimodal perception Differentiable probabilistic programming Physical understanding Robotics |
| September 2021 December 2021 | Course instructor McGill University, MONTREAL, CANADA, Co-designed and taught <i>Advanced Image Synthesis (ECSE 446/546)</i> Computer graphics Rendering Differentiable programming |
| May 2021 August 2021 | Research intern NVIDIA, SEATTLE ROBOTICS GROUP, (Remote) With Dieter Fox , Animesh Garg , and Fabio Ramos . Robotics Deep learning Computer graphics Computer vision |
| May 2019 August 2019 | Deep Learning Research Intern NVIDIA, TORONTO AI LAB, Canada With Sanja Fidler . Led the development of Kaolin , a 3D deep learning library for PyTorch. Deep learning Computer vision Computer graphics |
| November 2017 June 2015 | Research Assistant Robotics Research Center , IIIT HYDERABAD, India Conducted research in perception for autonomous driving and SLAM, taught graduate classes. Autonomous Driving Computer Vision Robotics Deep Learning SLAM |

SELECT HONORS AND AWARDS

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- 2021 **NVIDIA graduate fellowship** One of 5 fellowships awarded worldwide
 - 2021 **Google PhD fellowship** One of 3 fellowships awarded in North America in the *Machine perception, Speech technology, and Computer vision* category (10 worldwide) (**declined**)
 - 2020 **RSS pioneer 2020**. Selected to the *Robotics Science and Systems pioneers* cohort of 2020, a group of 22 leading senior PhD students and postdocs in the field.
 - 2020 **Best paper award**. Our paper titled *Maplite: Autonomous intersection navigation without a detailed prior map* won the best paper award for 2020, announced by *Robotics and Automation Letters*.
 - 2021 **Outstanding reviewer** for the IEEE Robotics and Automation Letters, 2020.
 - 2021 **Outstanding reviewer** for the International Conference on Learning Representations
 - 2021 **Outstanding reviewer** for the IEEE international conference on Computer Vision and Pattern Recognition
 - 2020 **Top reviewer** for the *European Conference on Computer Vision (ECCV)*, 2020 (1 out of 215 awards)
 - 2019 **DIRO Excellence Award** for research and academic (second consecutive year)
 - 2018 **ICRA PhD Forum**. Selected to present my work at the PhD Forum, ICRA 2018, in my first semester as a PhD student. Received generous travel support.
 - 2018 **DIRO Excellence Award** for research and academic excellence from DIRO, Université de Montréal.
 - 2017 **Graduated top of class**. Graduated with a GPA of 10.00/10.00 during my Masters at IIIT Hyderabad.

- 2023 **Army Research Lab.** “Open-world, Interpretable, Multimodal Models for Intelligent Autonomy”. Co-written with [Antonio Torralba](#) and [Sarah Schwettmann](#).
- 2022 **Army Research Lab.** “Multimodal generative world models”. Co-written with [Antonio Torralba](#) and [Josh Tenenbaum](#).
- 2020 **IVADO fundamental research grant.** “Differentiable perception, graphics, and optimization for weakly supervised 3D perception”. Co-written with 3 principal investigators (PI): [Liam Paull](#), [James Forbes](#), [Derek Nowrouzezahrai](#).
- 2021 **Facebook - unrestricted research gift.** “Bridging Bayesian optimization and differentiable simulation”. Co-written with [Jeannette Bohg](#) (PI) and [Rika Antonova](#) (co-PI).
- 2014 **L K Maheshwari Grant.** Awarded a seed grant for a proposal involving cooperative navigation of a heterogeneous swarm of aerial and ground robots.

 FEATURED PUBLICATIONS AND PREPRINTS

* equal first-authorship † indicates equal advising

- F4. **CONCEPTGRAPHS: OPEN-VOCABULARY 3D SCENE GRAPHS FOR PERCEPTION AND PLANNING.** ARXIV 2023
 Qiao Gu*, Ali Kuwajerwala*, Sacha Morin*, [Krishna Murthy Jatavallabhula](#)*, Bipasha Sen, Aditya Agarwal, Corban Rivera, William Paul, Kirsty Ellis, Rama Chellappa, Chuang Gan, Celso Miguel de Melo, Joshua B. Tenenbaum, Antonio Torralba, Florian Shkurti, Liam Paull. [Project Page](#)
- F3. **CONCEPTFUSION: OPEN-SET MULTIMODAL 3D MAPPING.** RSS 2023
[Krishna Murthy Jatavallabhula](#), Alihusein Kuwajerwala, Qiao Gu, Mohd Omama, Tao Chen, Shuang Li, Ganesh Iyer, Soroush Saryazdi, Nikhil Keetha, Ayush Tewari, Joshua B. Tenenbaum, Celso Miguel de Melo, Madhava Krishna, Liam Paull, Florian Shkurti, Antonio Torralba. [Project page](#)
- F2. **GRADSIM: DIFFERENTIABLE SIMULATION FOR SYSTEM IDENTIFICATION AND VISUOMOTOR CONTROL.** ICLR 2021
[Krishna Murthy Jatavallabhula](#)*, Miles Macklin*, Florian Golemo, Vikram Voleti, Linda Petrini, Martin Weiss, Breandan Consideine, Jérôme Parent-Lévesque, Kevin Xie, Kenny Erleben, Liam Paull, Florian Shkurti, Derek Nowrouzezahrai. [Video](#)
[OpenReview](#)
- F1. **GRADSLAM: DENSE SLAM MEETS AUTOMATIC DIFFERENTIATION.** ICRA 2020
[Krishna Murthy Jatavallabhula](#), Ganesh Iyer, Liam Paull. [Video](#) [Project page](#)

 REFEREED CONFERENCE PUBLICATIONS

* equal first-authorship † equal advising

- C20. **LEARNING CORRESPONDENCE UNCERTAINTY VIA DIFFERENTIABLE NONLINEAR LEAST SQUARES.** CVPR 2023
 Dominik Muhle, Lukas Koestler, [Krishna Murthy Jatavallabhula](#), Daniel Cremers.
- C19. **PAC-NeRF: PHYSICS-AUGMENTED CONTINUUM NEURAL RADIANCE FIELDS FOR GEOMETRY-AGNOSTIC SYSTEM IDENTIFICATION (SPOT-LIGHT - TOP 25% OF ACCEPTED PAPERS).** ICLR 2023
 Xuan Li, Yi-Ling Qiao, Peter Yichen Chen, [Krishna Murthy Jatavallabhula](#), Ming Lin, Chenfanfu Jiang, Chuang Gan.
- C18. **BAYESIAN OBJECT MODELS FOR ROBOTIC INTERACTION WITH DIFFERENTIABLE PROBABILISTIC PROGRAMMING.** CoRL 2022
[Krishna Murthy Jatavallabhula](#), Miles Macklin, Dieter Fox, Animesh Garg, Fabio Ramos.
- C17. **RETHINKING OPTIMIZATION WITH DIFFERENTIABLE SIMULATION FROM A GLOBAL PERSPECTIVE (ORAL - TOP 6.5%).** CoRL 2022
[Rika Antonova](#)*, Jingyun Yang*, [Krishna Murthy Jatavallabhula](#), Jeannette Bohg.
- C16. **f-CAL: VARIATIONAL CALIBRATION OF ALEATORIC UNCERTAINTY IN REGRESSION.** ICRA 2022
 Dhaivat Bhatt, Kaustubh Mani, Dishank Bansal, Hanju Lee, [Krishna Murthy Jatavallabhula](#), Liam Paull.
- C15. **TASKOGRAPHY: EVALUATING ROBOT TASK PLANNING OVER LARGE 3D SCENE GRAPHS.** CoRL 2021
 Christopher Agja*, [Krishna Murthy Jatavallabhula](#)*, Mohamed Khodeir, Ondra Miksik, Vibhav Vineet, Mustafa Mukadam, Liam Paull, Florian Shkurti.
- C14. **DRACO: WEAKLY SUPERVISED DENSE RECONSTRUCTION AND CANONICALIZATION OF OBJECTS.** ICRA 2021
 Rahul Sajjani, Aadil Mehdi Sanchawala, [Krishna Murthy Jatavallabhula](#), Srinath Sridhar, K. Madhava Krishna.

- C13. **AUTO LAY: BENCHMARKING MONOCULAR LAYOUT ESTIMATION.** IROS 2020
Kaustubh Mani, N. Sai Shankar, **Krishna Murthy Jatavallabhula**, K. Madhava Krishna.
- C12. **MULTI-OBJECT MONOCULAR SLAM FOR DYNAMIC ENVIRONMENTS.** IV 2020
Gokul Nair, Swapnil Daga, Rahul Sajani, Anirudha Ramesh, Junaid Ahmed Ansari, **Krishna Murthy Jatavallabhula**, K. Madhava Krishna.
- C11. **MONO LAYOUT: AMODAL SCENE LAYOUT FROM A SINGLE IMAGE.** WACV 2020
Kaustubh Mani, Swapnil Daga, Shubhika Garg, N. Sai Shankar, **Krishna Murthy Jatavallabhula**, K. Madhava Krishna.
- C10. **KAOLIN: A PYTORCH LIBRARY FOR ACCELERATING 3D DEEP LEARNING RESEARCH.** WHITEPAPER
Krishna Murthy Jatavallabhula, Edward Smith, Jean-Francois Lafleche, Clement Fuji Tsang, Artem Rozantsev, Wenzheng Chen, Tommy Xiang, Rev Lebareddian, Sanja Fidler.
- C9. **INFER: INTERMEDIATE REPRESENTATIONS FOR FUTURE PREDICTION.** IROS 2019
Shashank Srikanth, Junaid Ahmed Ansari, Karnik Ram R, Sarthak Sharma, **Krishna Murthy Jatavallabhula**, Madhava Krishna.
- C8. **CALIBNET: GEOMETRICALLY-SUPERVISED EXTRINSIC CALIBRATION USING 3D SPATIAL TRANSFORMER NETWORKS.** IROS 2018
Ganesh Iyer, Karnik Ram R., **Krishna Murthy atavallabhula**, K. Madhava Krishna.
- C7. **THE EARTH AIN'T FLAT: RECONSTRUCTION OF VEHICLES ON STEEP AND BUMPY ROADS FROM A MONOCULAR CAMERA.** IROS 2018
Junaid Ahmed Ansari, Sarthak Sharma, Anshuman Majumdar, **Krishna Murthy Jatavallabhula**, K. Madhava Krishna.
- C6. **CONSTRUCTING CATEGORY-SPECIFIC MODELS FOR MONOCULAR OBJECT SLAM.** ICRA 2018
Parv Parkhiya, Rishabh Khawad, **Krishna Murthy Jatavallabhula**, Brojeshwar Bhowmick, K. Madhava Krishna.
- C5. **BEYOND PIXELS: LEVERAGING GEOMETRY AND SHAPE CUES FOR MULTI-OBJECT TRACKING.** ICRA 2018
Sarthak Sharma, Junaid Ahmed Ansari, **Krishna Murthy Jatavallabhula**, K. Madhava Krishna.
- C4. **SHAPE PRIORS FOR REAL-TIME MONOCULAR OBJECT LOCALIZATION IN DYNAMIC ENVIRONMENTS.** IROS 2017
Krishna Murthy Jatavallabhula, Sarthak Sharma, and K. Madhava Krishna.
- C3. **RECONSTRUCTING VEHICLES FROM A SINGLE IMAGE: SHAPE PRIORS FOR ROAD SCENE UNDERSTANDING.** ICRA 2017
Krishna Murthy Jatavallabhula, G.V. Sai Krishna, Falak Chhaya, and K. Madhava Krishna.
- C2. **CLUSTER, ALLOCATE, COVER: AN EFFICIENT APPROACH FOR MULTI-ROBOT COVERAGE.** SMC 2015
Avinash Gautam, **Krishna Murthy Jatavallabhula**, Gourav Kumar, SP Arjun Ram, Bhargav Jha, and Sudeept Mohan.
- C1. **MAXXYT: AN AUTONOMOUS WEARABLE DEVICE FOR REAL-TIME TRACKING OF A WIDE RANGE OF EXERCISES.** UKSIM 2015
Danish Pruthi, Ayush Jain, **Krishna Murthy Jatavallabhula**, Ruppesh Nalwaya, and Puneet Teja.

JOURNAL PUBLICATIONS

- J5. **DIFFERENTIABLE VISUAL COMPUTING FOR INVERSE PROBLEMS AND MACHINE LEARNING.** NATURE MACHINE INTELLIGENCE 2023
Andrew Spielberg, Cengiz Oztireli, Derek Nowrouzezahrai, Fangcheng Zhong, Konstantinos Rematas, **Krishna Murthy Jatavallabhula**, Tzu-Mao Li.
- J4. **ANYLOC: TOWARDS UNIVERSAL VISUAL PLACE RECOGNITION.** RAL 2023
Nikhil Keetha*, Avneesh Mishra*, Jay Karhade*, **Krishna Murthy Jatavallabhula**, Sebastian Scherer, Madhava Krishna, Sourav Garg. [🔗 Project page](#)
- J3. **MAPLITE: AUTONOMOUS INTERSECTION NAVIGATION WITHOUT A DETAILED PRIOR MAP (BEST PAPER AWARD).** RAL 2020
Teddy Ort, **Krishna Murthy Jatavallabhula**, Rohan Banerjee, Sai Krishna Gottipati, Dhaivat Bhatt, Igor Gilitschenski, Liam Paull, Daniela Rus. [🔗 Video](#) [🔗 Paper](#)
- J2. **DEEP ACTIVE LOCALIZATION.** RAL 2019
Sai Krishna*, Keehong Seo*, Dhaivat Bhatt, Vincent Mai, **Krishna Murthy Jatavallabhula**, Liam Paull.
- J1. **FAST: SYNCHRONOUS FRONTIER ALLOCATION FOR SCALABLE ONLINE MULTI-ROBOT TERRAIN COVERAGE.** JIRS 2017
Avinash Gautam, Bhargav Jha, Gourav Kumar, **Krishna Murthy Jatavallabhula**, SP Arjun Ram, and Sudeept Mohan.

PREPRINTS

- P7. **NEUROSYMBOLIC LANGUAGE MODELS FOR 3D UNDERSTANDING.** UNDER REVIEW
Shivam Chandhok*, **Krishna Murthy Jatavallabhula***, Chaitanya Devaguptapu, Qiao Gu, Deepti Balachandra Hegde, George Tang, Connie Jiang, Sarah Schwettmann, Joshua B. Tenenbaum, Vibhav Vineet, Ondrej Miksik, Vineeth N. Balasubramanian, Leonid Sigal, Antonio Torralba.

- P6. **SPLATAM: SPLAT, TRACK, AND MAP 3D GAUSSIANS FOR DENSE RGB-D SLAM.** ARXIV 2023
Nikhil Varma Keetha, Jay Karhade, **Krishna Murthy Jatavallabhula**, Gengshan Yang, Sebastian Scherer, Deva Ramanan, Jonathon Luiten.
- P5. **TACTILE ESTIMATION OF EXTRINSIC CONTACT PATCH FOR STABLE PLACEMENT.** ARXIV 2023
Kei Ota, Devesh K. Jha, **Krishna Murthy Jatavallabhula**, Asako Kanezaki, Joshua B. Tenenbaum.
- P4. **ALT-PILOT: AUTONOMOUS NAVIGATION WITH LANGUAGE AUGMENTED TOPOMETRIC MAPS.** ARXIV 2023
Mohammad Omama, Pranav Inani*, Pranjal Paul*, Sarat Chandra Yellapragada, **Krishna Murthy Jatavallabhula**[†], Sandeep Chinchali[†], Madhava Krishna[†].
- P3. **TALK2BEV: LANGUAGE-ENHANCED BIRD’S-EYE VIEW MAPS FOR AUTONOMOUS DRIVING.** ARXIV 2023
Vikrant Dewangan*, Tushar Choudhary*, Shivam Chandhok*, Shubham Priyadarshan, Anushka Jain, Arun Singh, Siddharth Srivastava, **Krishna Murthy Jatavallabhula**[†], Madhava Krishna[†].
- P2. **ANTICIPATE & ACT: INTEGRATING LLMs AND CLASSICAL PLANNING FOR EFFICIENT TASK EXECUTION IN HOUSEHOLD ENVIRONMENTS.** PREPRINT 2023
Raghav Arora, Shivam Singh, Karthik Swaminathan, Ahana Datta, Snehasis Banerjee, Brojeshwar Bhowmick, **Krishna Murthy Jatavallabhula**, Mohan Sridharan, Madhava Krishna.
- P1. **FOLLOW ANYTHING: OPEN-SET DETECTION, TRACKING, AND FOLLOWING IN REAL-TIME.** ARXIV 2023
Alaa Maalouf, Ninad Jadhav, **Krishna Murthy Jatavallabhula**, Makram Chahine, Daniel M. Vogt, Robert J. Wood, Antonio Torralba, Daniela Rus.

REFEREED WORKSHOP PUBLICATIONS

- W7. **CONCEPTGRAPHS: OPEN-VOCABULARY 3D SCENE GRAPHS FOR PERCEPTION AND PLANNING.** CoRL WORKSHOPS 2023
Qiao Gu*, Ali Kuwajerwala*, Sacha Morin*, **Krishna Murthy Jatavallabhula***, Bipasha Sen, Aditya Agarwal, Corban Rivera, William Paul, Kirsty Ellis, Rama Chellappa, Chuang Gan, Celso Miguel de Melo, Joshua B. Tenenbaum, Antonio Torralba, Florian Shkurti, Liam Paull. [🔗 Project Page](#)
- W6. **CONCEPTFUSION: OPEN-SET MULTIMODAL 3D MAPPING.** ICRA WORKSHOPS 2023
Krishna Murthy Jatavallabhula, Alihusein Kuwajerwala, Qiao Gu, Mohd Omama, Tao Chen, Shuang Li, Ganesh Iyer, Soroush Saryazdi, Nikhil Keetha, Ayush Tewari, Joshua B. Tenenbaum, Celso Miguel de Melo, Madhava Krishna, Liam Paull, Florian Shkurti, Antonio Torralba. [🔗 Project page](#)
- W5. **ROBUSTPOINTSET: A DATASET FOR BENCHMARKING ROBUSTNESS OF POINT CLOUD CLASSIFIERS.** ICLR WORKSHOPS 2021
Saeid Asgari Taghanaki, Jieliang Luo, Ran Zhang, Ye Wang, Pradeep Kumar Jayaraman, **Krishna Murthy Jatavallabhula**.
- W4. **GRADSLAM: AUTOMAGICALLY DIFFERENTIABLE SLAM.** CVPR WORKSHOPS 2020, RSS WORKSHOPS 2020
Krishna Murthy Jatavallabhula, Ganesh Iyer, Soroush Saryazdi, Liam Paull. [🔗 Video](#) [🔗 Project page](#)
- W3. **PROBABILISTIC OBJECT DETECTION: STRENGTHS, WEAKNESSES, OPPORTUNITIES.** ICML WORKSHOPS 2020
Dhaivat Bhatt, Dishank Bansal, Gunshi Gupta, Hanju Lee, **Krishna Murthy Jatavallabhula**, Liam Paull.
- W2. **RECONSTRUCT, RASTERIZE AND BACKPROP: DENSE SHAPE AND POSE ESTIMATION FROM A SINGLE IMAGE.** CVPR WORKSHOPS 2020
Aniket Pokale, Aditya Aggarwal **Krishna Murthy Jatavallabhula**, K. Madhava Krishna.
- W1. **GEOMETRIC CONSISTENCY FOR SELF-SUPERVISED END-TO-END VISUAL ODOMETRY.** CVPR WORKSHOPS 2018
Ganesh Iyer*, **Krishna Murthy Jatavallabhula***, Gunshi Gupta, K. Madhava Krishna, and Liam Paull..

PROFESSIONAL SERVICE AND VOLUNTEERING

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| 2022-2023 | Associate editor; IROS |
| 2023 | Publicity and social media; Canadian AI Conference |
| 2017-Present | Reviewer; robotics (ICRA, IROS, RAL, RSS, CoRL), Vision (CVPR, ICCV, ECCV, ACCV, WACV, ICVGIP, CRV), and ML (Neurips, ICML, ICLR, AAAI) venues |
| 2020-2021 | Student Volunteer, ICML (International Conference on Machine Learning) |
| 2020 | Student Volunteer, RSS (Robotics Science and Systems) |
| 2020-2021 | Student Volunteer, ICLR (International Conference on Learning Representations) |

OUTREACH AND INCLUSION

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| 2022-present | Mentor - Mila mentorship program |
| 2022 | Mentor - Black in AI academic program |

- 2021 Student member, Mila equity, diversity, and inclusion (EDI) committee (1 of 7 student representatives)
- 2020 Mentor, Neurips workshop (DiffCVGP)
- 2020 Diversity and inclusion panel, RSS (Robotics Science and Systems)
- 2018 Mentor, AI for social good workshop. McGill University.

WORKSHOPS AND SESSIONS CO-ORGANIZED

- Dec 2021 *Lead organizer* (Proposer, Program chair), Physical reasoning and inductive biases for the real world (Neurips 2021 workshop) [Webpage](#)
- Oct 2021 *Lead organizer* (Proposer, Program chair), Differentiable 3D computer vision and graphics (ICCV 2021 workshop). [Webpage](#)
- Jul 2021 *Program co-chair*, Robotics Science and systems pioneers workshop (RSS 2021). [Webpage](#)
- May 2021 *Lead organizer* (Proposer, Program chair), Beyond the research paper: Rethinking how we share scientific understanding in ML (ICLR 2021 workshop). [Webpage](#)
- Jan-May 2021 *Lead Organizer*, Robot learning seminar series: Mila and REAL - Winter 2021. [Webpage](#)
- Dec 2020 *Lead organizer* (Proposer, Program chair), Differentiable vision, graphics, and physics applied to machine learning (Neurips 2020). [Webpage](#)
- Sep-Dec 2020 *Lead Organizer*, Robot learning seminar series: Mila and REAL - Fall 2020. [Webpage](#)
- Nov 2019 *Breakout session organizer*, Pan-Canadian SOCMLx.

TALKS

- Nov 17 2023 Guest lecture - Robot Learning Course - University of Illinois Urbana-Champaign
- Oct 31 2023 Invited talk - University of Bristol - ML and CV seminar (MaVi)
- Oct 17 2023 Invited talk - Boston Dynamics
- June 6 2023 Guest lecture - Computer vision course offering
- Apr 24 2023 Invited talk - Stanford SVL
- Apr 24 2023 Invited talk - Microsoft Mixed Reality Seminars
- Mar 23 2023 Invited talk at Cornell Robotics
- Feb 23 2023 Invited talk - Katerina Fragkiadaki's group (CMU)
- Feb 22 2023 Invited talk - Scene representations group (MIT)
- Jan 14 2023 Invited talk - IIT Kanpur robotics club
- Dec 16 2022 Guest lecture - ROBGY 6203 - Robot perception - New York University (NYU)
- Dec 2 2022 MIT BCS physical reasoning meeting - **Physical understanding: An AI perspective**
- Dec 1 2022 Guest speaker - MIT EECS 6.S980 - Machine learning for inverse graphics (Instructor: Vincent Sitzmann)
- Oct 6 2022 Invited talk - MIT Machine Intelligence Research Forum - **Differentiable programming for spatial AI**
- Dec 2021 Invited talk - Talking robotics series [\[video\]](#)
- Nov 2021 Guest lecture - Introduction to autonomous vehicles (Duckietown) - Université de Montréal
- Oct 2021 Structural and Compositional Learning on 3D Data, ICCV 2021 Workshop - **Taskography: Task planning over large 3D scene graphs**
- Aug 2021 [AI for Autonomous Driving workshop](#), IJCAI 2021 - [\[video\]](#)
- July 2021 Tartan SLAM series - Carnegie Mellon University - [\[video\]](#)
- June 23 2021 Invited talk - ML reading group at the University of Sydney
- June 15 2021 Invited talk - Dynamical systems reading group, Mila
- Apr 7 2021 Microsoft autonomous systems - **gradSim: A differentiable simulation framework**
- Mar 26 2021 AI in robotics (University of Toronto) - **gradSLAM + gradSIM** [\[video\]](#)
- Feb 23 2021 KUIS AI (Istanbul) - **Building differentiable models of the 3D world** [\[video\]](#)
- Jan 19 2021 MIT Vision seminar - **Building differentiable models of the 3D world** [\[video\]](#)
- Oct 11 2020 IEEE chapter, Indonesia - **Deep learning for robot perception**
- Sep 22 2020 Cornell robotics group - **gradSLAM: Dense SLAM meets automatic differentiation**
- Aug 29 2020 CV Talks, India: Computer vision talks - **gradSLAM: Automagically differentiable SLAM** [\[video\]](#)
- Jul 2020 Robotics Science and Systems pioneers - **gradSLAM: Dense SLAM meets automatic differentiation**
- Jul 2020 Robotics Science and Systems: structured approaches to robot learning workshop - **gradSLAM: Automagically differentiable SLAM**
- Jun 2020 CVPR: Deep declarative networks workshop - **gradSLAM: Automagically differentiable SLAM**
- Feb 2019 NVIDIA Webinar - **3D deep learning with Kaolin**

TEACHING

- 2021 (Instructor) **Realistic / Advanced image synthesis** (ECSE 446/546) at McGill, Montreal.
- 2021 (Teaching assistant) **Representation Learning** at Mila and Université de Montréal, with Aaron Courville.
- 2020 (Teaching assistant) **Advanced projects in deep learning** at Mila, with Pierre-Luc Carrier and Joumana Ghosn.
- 2017 (Designed and co-taught) **Mobile Robotics and Computer Vision** at IIIT Hyderabad, with Prof. K. Madhava Krishna.
- 2016 (Teaching assistant) **Mobile Robotics** at IIIT Hyderabad, with Prof. K. Madhava Krishna.

STUDENTS MENTORED

A list of students I have closely mentored on a research or technical project. (Criteria: Mentorship lasted 3 months or longer)

- 7 Students at their PhD level or equivalent.
- 30 Students pursuing Masters programs
- 20 Students at their undergraduate level of study (includes UROP students at MIT, visitors / interns at Mila, Université de Montréal and IIIT Hyderabad, India)

REFERENCES

References provided upon request