

Education

- Sep '17 - **University of Toronto**, *PhD in Computer Science*, 3.9/4.0.
present Advised by Prof. Sanja Fidler
- May '17 **IIT Kanpur**, *B.Tech in Computer Science*, 9.6/10.0.

Experience

- Sep '17 **University of Toronto**, *Graduate Researcher*, Prof. Sanja Fidler.
 - present Working on Machine Learning for Machine Learning data, including human-in-the-loop data annotation [2,3,4,13], learning from noisy data [6] and efficient data acquisition [7] amongst others. I also co-lead the development of the *Toronto Annotation Suite*, a next-generation AI powered data annotation platform.
- Nov '19 **NVIDIA**, *Research Scientist*.
 - present Currently working on multiple projects related to generative models of simulated data
- Jul '18 **NVIDIA**, *Research Intern*, Prof. Sanja Fidler.
- Nov '19 Research primarily related to learning generative models of data given parametric simulators. Has resulted in multiple publications including Meta-Sim and Meta-Sim2 [9, 14], Federated Medical Image Simulation [12], Neural Turtle Graphics [8], STEAL [6] amongst others
- May '17 **Fyusion Inc.**, *Research Intern*, Dr. Stefan Holzer.
- Aug '17 Confidential
- Aug '16 **IIT Kanpur**, *Undergraduate Researcher*, Prof. Gaurav Sharma, Dr. Karan Sikka.
 - May'17 Worked on Video Action Recognition, resulting in a publication at CVPR 2017 [1]
- May '16 **University of Toronto**, *Research Intern*, Prof. Sanja Fidler, Prof. Raquel Urtasun.
 - Jul '16 Worked on extending Order Embeddings to generate Visual-Semantic Embeddings that simultaneously satisfy multiple ordering rules between entities

Publications

- [16] ATISS: Autoregressive Transformers for Indoor Scene Synthesis
Despoina Paschalidou, [Amlan Kar](#), Masha Shugrina, Karsten Kreis, Andreas Geiger, Sanja Fidler
NeurIPS 2021, Virtual
- [15] Towards Good Practices for Efficiently Annotating Large-Scale Image Classification Datasets
Yuan-Hong Liao, [Amlan Kar](#), Sanja Fidler
CVPR 2021, Virtual (**Oral Presentation**)
- [14] Meta-Sim2: Unsupervised Learning of Scene Structure for Synthetic Data Generation
Jeevan Devaranjan*, [Amlan Kar*](#), Sanja Fidler
ECCV 2020, Virtual
- [13] Interactive Annotation of 3D Object Geometry using 2D Scribbles
Tianchang Shen*, Jun Gao*, [Amlan Kar](#), Sanja Fidler
ECCV 2020, Virtual
- [12] Federated Simulation for Medical Imaging
Daiqing Li, [Amlan Kar](#), Nishant Ravikumar, Alejandro Frangi, Sanja Fidler
MICCAI 2020, Virtual (**Young Scientist Award Nominee**)
- [11] Learning to Evaluate Perception Models using Planner-Centric Metrics
Jonah Philion, [Amlan Kar](#), Sanja Fidler
CVPR 2020, Virtual
- [10] Nonlinear Color Triads for Approximation, Learning and Direct Manipulation of Color Distributions
Masha Shugrina, [Amlan Kar](#), Karan Singh, Sanja Fidler
SIGGRAPH 2020, Virtual

- [9] Meta-Sim: Learning to Generate Synthetic Datasets
Amlan Kar, Aayush Prakash, Ming-Yu Liu, Eric Cameracci, Justin Yuan, Matt Rusiniak, David Acuna, Antonio Torralba, Sanja Fidler
 ICCV 2019, Seoul, South Korea **(Oral Presentation)**
- [8] Neural Turtle Graphics for Modeling City Road Layouts
 Hang Chu, Daiqing Li, David Acuna, Amlan Kar, Maria Shugrina, Xinkai Wei, Ming-Yu Liu, Antonio Torralba, Sanja Fidler
 ICCV 2019, Seoul, South Korea **(Oral Presentation)**
- [7] Learning to Caption Images through a Lifetime by Asking Questions
 Kevin Shen, Amlan Kar, Sanja Fidler
 NeurIPS 2018, ViGIL Workshop **(Oral Presentation)**
 ICCV 2019, Seoul, South Korea
- [6] Devil is in the Edges: Learning Semantic Boundaries from Noisy Annotations
 David Acuna, Amlan Kar, Sanja Fidler
 CVPR 2019, Long Beach, CA, USA **(Oral Presentation)**
- [5] Creative Flow+ Dataset
 Maria Shugrina, Ziheng Liang, Amlan Kar, Jiaman Li, Angad Singh, Karan Singh, Sanja Fidler
 CVPR 2019, Long Beach, CA, USA
- [4] Fast Interactive Object Annotation with Curve-GCN
 Huan Ling*, Jun Gao*, Amlan Kar, Wenzheng Chen, Sanja Fidler
 CVPR 2019, Long Beach, CA, USA
- [3] Object Instance Annotation with Deep Extreme Level Set Evolution
 Zian Wang, David Acuna*, Huan Ling*, Amlan Kar, Sanja Fidler
 CVPR 2019, Long Beach, CA, USA
- [2] Efficient Interactive Annotation of Segmentation Datasets with PolygonRNN++
 David Acuna*, Huan Ling*, Amlan Kar*, Sanja Fidler
 CVPR 2018, Salt Lake City, Utah, USA
- [1] AdaScan: Adaptive Scan Pooling in Deep Convolutional Neural Networks for Human Action Recognition in Videos
Amlan Kar*, Nishant Rai*, Karan Sikka, Gaurav Sharma
 CVPR 2017, Honolulu, Hawaii, USA

Patents

- [4] Iterative Spatial Graph Generation,
 Hang Chu, Daiqing Li, David Jesus Acuna Marrero, Amlan Kar, Maria Shugrina, Ming-Yu Liu, Antonio Torralba Barriuso, Sanja Fidler
 US20200302250A1 Pending Approval
- [3] Learning to generate synthetic datasets for training neural networks
Amlan Kar, Aayush Prakash, Ming-Yu Liu, David Jesus Acuna Marrero, Antonio Torralba Barriuso, Sanja Fidler
 US20200160178A1 Pending Approval
- [2] Method and system for color representation generation
 Masha Shugrina, Amlan Kar, Sanja Fidler, Karan Singh
 US20190355155A1 Pending Approval
- [1] Systems and methods for polygon object annotation and a method of training and object annotation system
 Sanja Fidler, Amlan Kar, Huan Ling, Jun Gao, David Acuna
 US10643130B2

Teaching Experience

- Jan '18 **Introduction to Visual Understanding**, CSC420, UofT, TA.
- May '18 Preparation of course material and assignments
- Sep '17 **Introduction to AI**, CSC384, UofT, TA.
- Dec '17 Preparation of course material and assignments
- Jan '17 **Topics in Computer Vision**, CS698U, IITK.
- May '17 Preparation of course material and assignments
- Aug '16 **Introduction to Computing**, ESC101A, IITK, Tutor.
- May '17 Teaching tutorials, setting and grading question papers and supervising lab sessions
- Aug '14 **Introduction to Electrodynamics**, PHY103A, IITK, Academic Mentor.
- Apr '15 Led doubt clearing sessions and personally mentored students

Academic Achievements

- Apr '21 **RBC Graduate Fellowship**, 25000 CAD, University of Toronto.
- Jun '18 **PhD Conference Travel Award**, UofT, CVPR 2018.
- Apr '15,'16 **Academic Excellence Award**, IIT Kanpur, Dean's List.
- Nov '14 **Best Sectional Award**, Course Project for TA - 201.
Received the award for building a Mechanical Object Elevator
- Jun '13 **IIT-JEE**, All India Rank - 271 (99.998 Percentile).
- Apr '13 **Indian National Physics Olympiad**, Selected in Top 35 in India.
Awarded gold medal and attended selection camp for Indian team to IPhO '13
- Dec '12 **National Standard Olympiads**, Selected in Top 300(1%) in India.
Selected in Top 1% in National Standard Olympiads in Physics, Chemistry and Astronomy
- Aug '12 **Kishore Vaigyanik Protsahan Yojana(KVPY)**.
One of 300 recipients of KVPY - 2012 scholarship for higher studies in Basic Sciences
- Aug '12,'07 **All Rounder of the Year Award**, D.A.V. CSPur.
- Aug '08 **National Talent Search Examination**.
One of 800 recipients of NTSE - 2008 scholarship
- Aug '06 **National Cyber Olympiad**, All India Rank - 1.

Academic Service

Reviewer CVPR '18, '19, '20, '21; ICLR '19 '20 '21; ECCV '18, '20; ICCV '19, '21, NeurIPS '21