

# Adrien Gaidon

PhD, Machine Learning Leader

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Lawful US permanent resident

## Professional Experience

- 2021 - **Adjunct Faculty, Stanford University**, (*Lecturer 2021-, Professor 2023-*).  
Co-lecturer (with Prof. Niebles) for CS131: "Computer Vision: Foundations and Applications" ☞
- 2020 - **Head of Machine Learning, Toyota Research Institute (TRI)**, CA, USA.  
Leader of the ML org at TRI (3 departments, 20+ people, Senior Manager 2020-2021, Director 2022-). Responsible for strategy, research, and tech transfer to build Toyota's ML foundations across a wide variety of applications. Contributed to 46+ papers at top ML venues, 50+ patents, and 5 practical applications since Jan. 2020. Part of TRI's executive leadership team since 2022.
- 2017 - 2019 **Manager & Senior Research Scientist, Machine Learning, Toyota Research Institute (TRI)**.  
Founder and Manager of the ML team at TRI. Responsible for creating and leading TRI's ML strategy for Automated Driving, from academic collaborations (esp. with Stanford), research (22 publications in 2017-2019), to ML cloud infrastructure, and deployment of safety-critical models on public roads.
- 2013 - 2016 **Research Scientist, Computer Vision, XRCE (Xerox Research Center Europe)**, France.  
Tech lead on deep learning for video understanding. Research in and transfer of computer vision and ML algorithms. Pioneer in simulation for deep learning (CVPR'16 VKITTI paper cited 900 times).
- 2008 - 2012 **Doctoral Researcher, Microsoft Research - Inria joint center**, Paris, France.  
Invented, implemented, and experimentally validated state-of-the-art Computer Vision and Machine Learning algorithms for action recognition in challenging real-world videos (e.g., movies, YouTube).
- 2008 **R&D Engineer, LEAR team, Inria**, Grenoble, France.  
Implementation in Python/C/C++ of event and object classification and detection algorithms. Participation to two international Computer Vision competitions: TRECVID and PASCAL VOC (winner of two tracks).
- 06-08/2007 **Research intern, Inria Rocquencourt**, Paris, France.  
Structure learning of dynamic Bayesian networks using statistical tests and genetic algorithms.
- 06-08/2006 **Research intern, LIG research lab, IMAG institute**, Grenoble, France.  
Implementation (OCaml) of formal methods in the automatic proof research domain.

## Education

- 2008 - 2012 **PhD in Computer Science, Microsoft Research - INRIA, Paris & LEAR Team, INRIA Grenoble**, under the supervision of Cordelia Schmid and Zaid Harchaoui, in the fields of Computer Vision and Machine Learning. Title: *Structured Models for Action Recognition in Real-world Videos*.
- 2007 - 2008 **MSc in Artificial Intelligence, Institut Polytechnique (INP)**, Grenoble, France.
- 2005 - 2008 **Engineer Diploma in Computer Science and Applied Mathematics, ENSIMAG (Ecole Nationale Supérieure d'Informatique et de Mathématiques Appliquées de Grenoble)**, France.
- 2003 - 2005 **"Classes Préparatoires MPSI et MP\*"**, preparation courses (Mathematics and Physics) for the French "Grandes Écoles", Clermont-Ferrand, France.
- 2003 **European Scientific Baccalaureate with distinction, equivalent to "A" levels**.

## Awards

- 2023 Best paper award at the Learning for Dynamics & Control Conference (L4DC)
- 2021 Outstanding reviewer award at CVPR 2015, 2018, 2021
- 2020 Winner (with Blake Wulfe) of the NeurIPS 2020 ProcGen RL Competition ☞, report ☞
- 2020 Top 10% reviewer award at NeurIPS 2020
- 2018 COCO-Mapillary Competition Runner-Up at ECCV 2018 ☞
- 2015 Xerox Innovation Group President's Award for innovative research in Computer Vision
- 2008 - 2012 Microsoft Research - Inria PhD scholarship grant
- 2008 Co-winner of the PASCAL VOC 2008 challenge on object classification and detection

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## Press Coverage & Interviews

Axios: Dividing work between humans and AI, 2023 [↗](#)  
TWiMLAI Podcast: Principle-centric AI [↗](#), 2022  
Gradient Dissent Podcast: Advancing ML research in autonomous vehicles [↗](#), 2021  
TechXplore: "A framework to increase the safety of robots operating in crowded environments" [↗](#), 2020  
TWiMLAI podcast: "Advancing Autonomous Vehicle Development Using Distributed Deep Learning", 2019 [↗](#)  
DL Summit interview on ML at Toyota, 2019 [↗](#)  
W&B interview on ML at TRI, 2019 [↗](#)  
AWS Blog: "TRI accelerates safe automated driving with deep learning at a global scale on AWS", 2018 [↗](#)  
Forbes: "Artificial Intelligence: The Clever Ways Video Games Are Used To Train AIs", 2018 [↗](#)  
Forbes: "How Deep Learning Can Use Virtual Worlds To Solve Real World Problems", 2016 [↗](#)  
MIT Tech Review: "To Get Truly Smart, AI Might Need to Play More Video Games", 2016 [↗](#)  
Wired: "Making AI Play Lots of Videogames Could Be Huge (No, Seriously)", 2016 [↗](#)  
El Espanol: "Máquinas más listas gracias a los videojuegos", 2016 [↗](#)

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## Communication Skills

### — With Humans

Native French

Fluent English & German

*Lived in the USA and in Germany*

### — With Computers

Languages Python, C/C++, bash

Others PyTorch (main DL framework), Docker, Linux, AWS, HPC

### — With Researchers

Computer Vision object detection, tracking, semantic segmentation, action recognition, 3D vision (esp. depth estimation), synthetic data (esp. from simulators and game engines)  
Machine Learning Deep Learning (esp. convnets), supervised learning, self-supervised learning, domain adaptation, multi-task learning, optimization, kernel methods, time series analysis

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## Community

Scientific community Reviewer for the major machine learning, computer vision, and robotics conferences and journals (CVPR, ICLR, ICRA, RSS, NeurIPS, ICML, ICCV, ECCV, BMVC, IJCV, PAMI, TCSVT, ...)  
Open Source Contributor to and creator of Open Source Python projects, especially on action recognition, camera motion compensation, and kernel methods (<https://github.com/daien>)

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## Scientific Activities

100+ publications ( $\approx 7,700$  citations), 100+ patents filed (35 granted): Google Scholar profile [↗](#), Patents [↗](#)  
Co-organizer of the CVPR 2021 and ECCV 2022 workshops on Monocular 3D Perception (Mono3D) [↗](#)  
Co-organizer of the ICML 2020 workshop on AI for Autonomous Driving (AIAD) [↗](#)  
Co-organizer of the ECCV 2020 workshop on Perception for Autonomous Driving (PAD) [↗](#)  
Co-organizer of the CVPR 2020 workshop on Frontiers of Monocular 3D Perception [↗](#)  
Co-organizer of the ICML 2019 workshop on AI for Autonomous Driving (AIAD) [↗](#)  
Guest Editor for International Journal of Computer Vision (IJCV) Special Issue on "Synthetic Visual Data" [↗](#)  
Co-organizer of the first international workshop on *Virtual/Augmented Reality for Visual Artificial Intelligence* (VARVAI) at ECCV 2016 & ACM-MM 2016, <http://adas.cvc.uab.es/varvai2016/>

— Publications in peer-reviewed international journals

*Full Surround Monodepth from Multiple Cameras,*

V. Guizilini, I. Vasiljevic, R. Ambrus, G. Shakhnarovich, A. Gaidon, RA-L & ICRA, 2022 ↗

*Learning Optical Flow, Depth, and Scene Flow without Real-World Labels,*

V. Guizilini, KH. Lee, R. Ambrus, A. Gaidon, RA-L & ICRA, 2022 ↗

*RAT  $\iota$ LQR: A Risk Auto-Tuning Controller to Optimally Account for Stochastic Model Mismatch,*

H. Nishimura, N. Mehr, A. Gaidon, M. Schwager, RA-L & ICRA, 2021 ↗

*Spatiotemporal Relationship Reasoning for Pedestrian Intent Prediction,*

B. Liu, E. Adeli, Z. Cao, KH Lee, A. Shenoi, A. Gaidon, JC Niebles, RA-L & ICRA, 2020 ↗

*Generating Human Action Videos by Coupling 3D Game Engines and Probabilistic Graphical Models,*

CR. de Souza, A. Gaidon, Y. Cabon, N. Murray, AM. Lopez, IJCV, 2019, preprint ↗

*The Reasonable Effectiveness of Synthetic Visual Data,* A. Gaidon, AM. Lopez, F. Perronnin,

Guest Editorial of IJCV Special Issue on "Synthetic Visual Data", 2018, paper ↗

*Activity Representation with Motion Hierarchies,*

A. Gaidon, Z. Harchaoui, C. Schmid, IJCV, 2014, paper ↗ , code ↗

*Temporal Localization of Actions with Actoms,*

A. Gaidon, Z. Harchaoui, C. Schmid, PAMI, 2013, paper ↗ , code ↗

— Publications in peer-reviewed international conferences

*Towards Zero-Shot Scale-Aware Monocular Depth Estimation,*

V. Guizilini, I. Vasiljevic, D. Chen, R. Ambrus, A. Gaidon, ICCV, 2023 ↗

*Depth Field Networks for Generalizable Multi-view Scene Representation,*

V. Guizilini, I. Vasiljevic, J. Fang, R. Ambrus, G. Shakhnarovich, M. Walter, A. Gaidon, ICCV, 2023 ↗

*NeO 360: Neural Fields for Sparse View Synthesis of Outdoor Scenes,*

MZ. Irshad, S. Zakharov, R. Ambrus, T. Kollar, Z. Kira, A. Gaidon, ICCV, 2023 ↗

*Robust Self-Supervised Extrinsic Self-Calibration,*

T. Kanai, I. Vasiljevic, V. Guizilini, A. Gaidon, R. Ambrus, IROS, 2023 ↗

*In-Distribution Barrier Functions: Self-Supervised Policy Filters that Avoid Out-of-Distribution States,*

F. Castañeda, H. Nishimura, R. McAllister, K. Sreenath, A. Gaidon, **L4DC, 2023 (best paper award!)** ↗

*Viewpoint Equivariance for Multi-View 3D Object Detection,*

D. Chen, J. Li, V. Guizilini, R. Ambrus, A. Gaidon, CVPR, 2023 ↗

*Breaking the "Object" in Video Object Segmentation,*

P. Tokmakov, J. Li, A. Gaidon, CVPR, 2023 ↗

*Object Discovery from Motion-Guided Tokens,*

Z. Bao, P. Tokmakov, Y. Wang, A. Gaidon, M. Hebert, CVPR, 2023 ↗

*Neural Groundplans: Persistent Neural Scene Representations from a Single Image,* P. Sharma, A. Tewari,

Y Du, S Zakharov, R Ambrus, A Gaidon, W Freeman, F Durand, J Tenenbaum, V Sitzmann, ICLR, 2023 ↗

*Depth Is All You Need for 3D Detection,*

D. Park, J. Li, D. Chen, V. Guizilini, A. Gaidon, ICRA, 2023 ↗

*RAP: Risk-Aware Prediction for Robust Planning,*

H. Nishimura, J. Mercat, B. Wulfe, R. McAllister, A. Gaidon, **CoRL, 2022 (oral)** ↗

*ROAD: Learning an Implicit Recursive Octree Auto-Decoder to Efficiently Encode 3D Shapes,*

S. Zakharov, R. Ambrus, K. Liu, A. Gaidon, CoRL, 2022 ↗

*Representation Learning for Object Detection from Unlabeled Point Cloud Sequences,*

X. Huang, Y. Wang, V. Guizilini, R. Ambrus, A. Gaidon, J. Solomon, CoRL, 2022 ↗

*Depth Field Networks for Generalizable Multi-view Scene Representation,*

V. Guizilini, I. Vasiljevic, J. Fang, R. Ambrus, G. Shakhnarovich, M. Walter, A. Gaidon, ECCV, 2022 ↗

*ShAPO: Implicit Representations for Multi-Object Shape, Appearance, and Pose Optimization,*

M. Zubair Irshad, S. Zakharov, R. Ambrus, T. Kollar, Z. Kira, A. Gaidon, ECCV, 2022 ↗

*Photo-realistic Neural Domain Randomization,*

S. Zakharov, R. Ambrus, V. Guizilini, W. Kehl, A. Gaidon, ECCV, 2022

*S2Net: Stochastic Sequential Pointcloud Forecasting*,  
X. Weng, J. Nan, KH. Lee, R. McAllister, A. Gaidon, N. Rhinehart, K. Kitani, ECCV, 2022

*Heterogeneous-Agent Trajectory Forecasting Incorporating Class Uncertainty*,  
B. Ivanovic, KH. Lee, P. Tokmakov, B. Wulfe, R. McAllister, A. Gaidon, M. Pavone, IROS, 2022 ☞

*Object Permanence Emerges in a Random Walk along Memory*,  
P. Tokmakov, A. Jabri, J. Li, A. Gaidon, ICML, 2022 ☞

*Revisiting the "Video" in Video-Language Understanding*,  
S. Buch, C. Eyzaguirre, A. Gaidon, J. Wu, L. Fei-Fei, JC. Niebles, **CVPR, 2022 (oral)** ☞

*Multi-Frame Self-Supervised Depth with Transformers*,  
V. Guizilini, R. Ambrus, D. Chen, S. Zakharov, A. Gaidon, CVPR, 2022 ☞

*Discovering Objects that Can Move*,  
Z. Bao, P. Tokmakov, A. Jabri, Y. Wang, A. Gaidon, M. Hebert, CVPR, 2022 ☞

*Self-supervised Learning is More Robust to Dataset Imbalance*,  
H. Liu, JZ. HaoChen, A. Gaidon, T. Ma, **ICLR, 2022 (spotlight)** ☞

*Dynamics-Aware Comparison of Learned Reward Functions*,  
B. Wulfe, A. Balakrishna, L. Ellis, J. Mercat, R. McAllister, A. Gaidon, **ICLR, 2022 (spotlight)** ☞

*Self-Supervised Camera Self-Calibration from Video*,  
J. Fang, I. Vasiljevic, V. Guizilini, R. Ambrus, G. Shakhnarovich, A. Gaidon, MR. Walter, ICRA, 2022 ☞

*Control-Aware Prediction Objectives for Autonomous Driving*,  
R. McAllister, B. Wulfe, J. Mercat, L. Ellis, S. Levine, A. Gaidon, ICRA, 2022

*Provable Guarantees for Self-Supervised Deep Learning with Spectral Contrastive Loss*,  
J. HaoChen, C. Wei, A. Gaidon, T. Ma, **NeurIPS, 2021 (oral)** ☞

*Single-Shot Scene Reconstruction*, S. Zakharov, R. Ambrus, D. Park, V. Guizilini, W. Kehl, F. Durand, J. Tenenbaum, V. Sitzmann, J. Wu, A. Gaidon, CoRL, 2021 ☞

*Is Pseudo-Lidar needed for Monocular 3D Object detection?*,  
D. Park\*, R. Ambrus\*, V. Guizilini, J. Li, A. Gaidon, ICCV, 2021 ☞

*Geometric Unsupervised Domain Adaptation for Semantic Segmentation*,  
V. Guizilini, J. Li, R. Ambrus, A. Gaidon, ICCV, 2021 ☞

*Learning to Track with Object Permanence*,  
P. Tokmakov, J. Li, W. Burgard, A. Gaidon, ICCV, 2021 ☞

*Warp-Refine Propagation: Semi-Supervised Auto-labeling via Cycle-consistency*,  
A. Ganeshan, A. Vallet, Y. Kudo, S. Maeda, T. Kerola, R. Ambrus, D. Park, A. Gaidon, ICCV, 2021

*Sparse Auxiliary Networks for Unified Monocular Depth Prediction and Completion*,  
V. Guizilini, R. Ambrus, W. Burgard, A. Gaidon, CVPR, 2021 ☞

*Hierarchical Lovász Embeddings for Proposal-free Panoptic Segmentation*,  
T. Kerola, J. Li, A. Kanehira, Y. Kudo, A. Vallet, A. Gaidon, CVPR, 2021 ☞

*Monocular Depth Estimation for Soft Visuotactile Sensors*,  
R. Ambrus\*, V. Guizilini\*, N. Kuppaswamy\*, A. Beaulieu, A. Gaidon, A. Alspach, RoboSoft, 2021 ☞

*Heteroskedastic and Imbalanced Deep Learning with Adaptive Regularization*,  
K. Cao, Y. Chen, J. Lu, N. Arechiga, A. Gaidon, T. Ma, ICLR, 2021 ☞

*Self-Supervised 3D Keypoint Learning for Ego-motion Estimation*,  
J. Tang, R. Ambrus, V. Guizilini, S. Pillai, H. Kim, P. Jensfelt, A. Gaidon, **CoRL, 2020 (oral)** ☞

*MATS: An Interpretable Trajectory Forecasting Representation for Planning and Control*,  
B. Ivanovic, A. Elhafi, G. Rosman, A. Gaidon, M. Pavone, CoRL, 2020 ☞

*Neural Ray Surfaces for Self-Supervised Learning of Depth and Ego-motion*, I. Vasiljevic, V. Guizilini, R. Ambrus, S. Pillai, W. Burgard, G. Shakhnarovich, A. Gaidon, **3DV, 2020 (oral)** ☞

*It Is Not the Journey but the Destination: Endpoint Conditioned Trajectory Prediction*, K. Mangalam, H. Girase, S. Agarwal, K-H. Lee, E. Adeli, J. Malik, A. Gaidon, **ECCV, 2020 (oral, top 2%)** ☞

*Monocular Differentiable Rendering for Self-Supervised 3D Object Detection*,  
D. Beker, H. Kato, MA. Morariu, T. Ando, T. Matsuoka, W. Kehl, A. Gaidon, ECCV, 2020 ☞

*Reinforcement Learning based Control of Imitative Policies for Near-Accident Driving*,  
Z. Cao, E. Biyik, W. Z. Wang, A. Raventos, A. Gaidon, G. Rosman, D. Sadigh, RSS, 2020 ☞

*Risk-Sensitive Sequential Action Control with Multi-Modal Human Trajectory Forecasting for Safe Crowd-Robot Interaction*, H. Nishimura, B. Ivanovic, A. Gaidon, M. Pavone, M. Schwager, IROS, 2020 ☞

*Driving Through Ghosts: Behavioral Cloning with False Positives*,  
A. Bühler, A. Gaidon, A. Cramariuc, R. Ambrus, G. Rosman, W. Burgard, IROS, 2020 ☞

*PillarFlow: End-to-end Birds-eye-view Flow Estimation for Autonomous Driving*,  
KH Lee, M. Kliemann, A. Gaidon, J. Li, C. Fang, S. Pillai, W. Burgard, IROS, 2020 ☞

*Game-Theoretic Planning for Risk-Aware Interactive Agents*,  
M. Wang, N. Mehr, A. Gaidon, M. Schwager, IROS, 2020

*Behaviorally Diverse Traffic Simulation via Reinforcement Learning*, S. Shiroshita, S. Maruyama, D. Nishiyama, MY. Castro, K. Hamzaoui, G. Rosman, J. DeCastro, KH. Lee, A. Gaidon, IROS, 2020 ☞

*Discovering Avoidable Planner Failures of Autonomous Vehicles Using Counterfactual Analysis in Behaviorally Diverse Simulation*, D. Nishiyama, MY. Castro, S. Maruyama, S. Shiroshita, K. Hamzaoui, Y. Ouyang, G. Rosman, J. DeCastro, KH. Lee, A. Gaidon, ITSC, 2020

*3D Packing for Self-Supervised Monocular Depth Estimation*,  
V. Guizilini, R. Ambrus, S. Pillai, A. Raventos, A. Gaidon, **CVPR, 2020 (oral, top 5.7%)** ☞

*Autolabeling 3D Objects with Differentiable Rendering of SDF Shape Priors*,  
S. Zakharov, W. Kehl, A. Bhargava, A. Gaidon, **CVPR, 2020 (oral, top 5.7%)** ☞

*Real-Time Panoptic Segmentation from Dense Detections*, R. Hou, J. Li, A. Bhargava, A. Raventos, V. Guizilini, C. Fang, J. Lynch, A. Gaidon, **CVPR, 2020 (oral, top 5.7%)** ☞

*Spatio-Temporal Graph for Video Captioning with Knowledge Distillation*,  
B. Pan, H. Cai, DA Huang, KH Lee, A. Gaidon, E. Adeli, JC Niebles CVPR, 2020 ☞

*Semantically-Guided Representation Learning for Self-Supervised Monocular Depth*,  
V. Guizilini, R. Hou, J. Li, R. Ambrus, A. Gaidon, ICLR, 2020 ☞

*Disentangling Human Dynamics for Pedestrian Locomotion Forecasting with Noisy Supervision*,  
K. Mangalam, E. Adeli, KH. Lee, A. Gaidon, JC. Niebles, WACV (oral), 2020 ☞ , video ☞

*Learning Imbalanced Datasets with Label-Distribution-Aware Margin Loss*,  
K. Cao, C. Wei, A. Gaidon, N. Arechiga, T. Ma, NeurIPS, 2019 ☞ , also **oral** at BayLearn 2019 ☞

*Exploring the Limitations of Behavior Cloning for Autonomous Driving*,  
F. Codevilla, E. Santana, AM. Lopez, A. Gaidon, **ICCV, 2019 (oral, top 4.3%)** ☞ , video ☞

*Robust Semi-Supervised Monocular Depth Estimation with Reprojected Distances*,  
V. Guizilini, R. Ambrus, S. Pillai, A. Gaidon, **CoRL, 2019 (spotlight)** ☞

*Two Stream Networks for Self-Supervised Ego-Motion Estimation*,  
R. Ambrus, V. Guizilini, J. Li, S. Pillai, A. Gaidon, **CoRL, 2019 (spotlight)** ☞

*An Attention-based Recurrent Convolutional Network for Vehicle Taillight Recognition*,  
KH. Lee, T. Tagawa, J.M. Pan, A. Gaidon, B. Douillard, IV, 2019

*ROI-10D: Monocular Lifting of 2D Detection to 6D Pose and Metric Shape*,  
F. Manhardt, W. Kehl, A. Gaidon, CVPR, 2019 ☞

*SPIGAN: Privileged Adversarial Learning from Simulation*,  
KH. Lee, G. Ros, J. Li, A. Gaidon, ICLR, 2019 ☞

*SuperDepth: Self-Supervised, Super-Resolved Monocular Depth Estimation*,  
S. Pillai, R. Ambrus, A. Gaidon, ICRA, 2019 ☞

*Procedural Generation of Videos to Train Deep Action Recognition Networks*,  
C. de Souza, A. Gaidon, Y. Cabon, A.M. López, CVPR, 2017, paper ☞ , arXiv ☞ PHAV dataset ☞

*Sympathy for the Details: Dense Trajectories and Hybrid Classification Architectures for Action Recognition*,  
C. de Souza, A. Gaidon, E. Vig, A.M. López, ECCV, 2016, paper ☞ , arXiv ☞

*Virtual Worlds as Proxy for Multi-Object Tracking Analysis*,  
A. Gaidon, Q. Wang, Y. Cabon, E. Vig, CVPR, 2016, paper ☞ , arXiv ☞ , VKITTI dataset ☞

*Online Domain Adaptation for Multi-Object Tracking*,  
A. Gaidon, E. Vig, **BMVC, 2015 (oral, top 7%)**, paper ☞ , arXiv ☞

*Deep Fishing: Gradient Features from Deep Nets,*

A. Gordo, A. Gaidon, F. Perronnin, BMVC, 2015, paper ↗ , arXiv ↗

*Extending Generic BPM with Computer Vision Capabilities,*

A. Mos, A. Gaidon, E. Vig, RMSOC, 2015, paper ↗

*Recognizing Activities with Cluster-trees of Tracklets,*

A. Gaidon, Z. Harchaoui, C. Schmid, BMVC, 2012, paper ↗

*A Time Series Kernel for Action Recognition,*

A. Gaidon, Z. Harchaoui, C. Schmid, BMVC 2011, paper ↗ , code ↗

*Actom Sequence Models for Efficient Action Detection,*

A. Gaidon, Z. Harchaoui, C. Schmid, CVPR, 2011, paper ↗ , project ↗

*Mining Visual Actions from Movies,*

A. Gaidon, M. Marszalek, C. Schmid, **BMVC, 2009 (oral, top 9%)**, paper ↗ , project ↗ , talk ↗

## — Other publications

*Differentiable Rendering: A Survey,*

H. Kato, D. Beker, M. Morariu, T. Ando, T. Matsuoka, W. Kehl, A. Gaidon, arXiv, 2020 ↗

*Learning to Fuse Things and Stuff,* J. Li, A. Raventos, A. Bhargava, T. Tagawa, A. Gaidon, arXiv, 2018 ↗

*Online Learning to Sample,* G. Bouchard, G. T. Trouillon, J. Perez, A. Gaidon, arXiv, 2015 ↗

*Self-Learning Camera: Autonomous Adaption of Object Detectors to Unlabeled Video Streams,*

A. Gaidon, G. Zen, J-A. Rodriguez-Serrano, arXiv, 2014 ↗

*Automatic Recognition of Human Activities in Realistic Videos,*

A. Gaidon, Z. Harchaoui, C. Schmid, ERCIM News Magazine, 2013 ↗

*Classification aided two stage localization,*

H. Harzallah, C. Schmid, F. Jurie, A. Gaidon, PASCAL VOC Challenge Workshop, ECCV 2008 ↗

*Inria-LEAR's video copy detection system,*

M. Douze, A. Gaidon, H. Jegou, M. Marszalek, C. Schmid, TRECVID Workshop 2008 ↗

## — Invited talks and demos

2023 Invited talk at CVPR'23 on "Synthetic data for embodied foundations" at the Synthetic Data for Autonomous Systems (SDAS) workshop ↗

Invited talk at ICRA'23 on "Geometric Foundation Models" at the Workshop on Scalable Autonomous Driving ↗

2022 "Principle-centric AI for Embodied Intelligence", invited talk at the ICRA'22 workshop on Autonomous Driving ↗ and CVPR'22 AVA workshop ↗

"Self-Supervised Analysis-by-Synthesis", invited talk at the Deep Learning Summit, SF, 2022 ↗

2021 "Self-Supervised Depth for Monocular 3D Perception", invited talk at the ICCV 2021 Workshop on 3D Object Detection from Images ↗

"Bridging the Perception-Control Gap with Prediction", invited talk at the ICCV 2021 Workshop on Benchmarking Trajectory Forecasting Models ↗

"Scalable Geometric and Synthetic Supervision for Scene Understanding", invited talk at the ICCV 2021 ROAD Workshop ↗

"Bridging the Perception-Control Gap with Prediction", invited talk at the RSS workshop on Perception and Control for Autonomous Navigation in Crowded, Dynamic Environments ↗

"Self-supervised 3D Vision", invited talk at Oxford ↗

2020 "Driving ML across the Stack", invited talk at TUM ↗

"The 3 R's and P's of Autonomous Driving: Robustness, Randomness, and Risk in Perception, Prediction, and Planning", talk at RSS 2020 workshop on Interaction and Decision-Making in Autonomous-Driving ↗ and at IPAM's workshop on Autonomous Vehicles ↗

"Scaling up ML for Autonomy", talk at Wayve.ai

"Spatiotemporal Relationship Reasoning for Pedestrian Intent Prediction", Long-term Human Motion Prediction workshop, ICRA'20, ↗ , video ↗

- 2019 "Self-Supervised Pseudo-Lidar Networks", Stanford Robotics seminar [↗](#) and ICCV 2019 Workshop on Autonomous Driving - Beyond Single-Frame Perception [↗](#)
- "Learning from Structure for World-Scale Automated Driving", ICCV workshop on Autonomous Navigation in Unconstrained Environment (AutoNUE) [↗](#)
- "Self-Supervised Monocular Depth for Automated Driving", talk at CVPR 2019 Workshop on Workshop on Autonomous Driving - Beyond Single-Frame Perception [↗](#)
- "Beyond Supervised Driving", talk at Element AI & MILA, Montreal
- "Predicting and Using Monocular Depth for Deep Driving", talk at IV 2019 workshop on 3D Deep Learning for Automated Driving (3D-DLAD) [↗](#)
- "Beyond Supervised Driving", talk at IV 2019 workshop on Unsupervised Learning for Automated Driving (ULAD) [↗](#)
- "Scaling Beyond Supervised Driving with PyTorch", talk at F8, San Jose, USA, video [↗](#)
- "Beyond Supervised Driving", invited talk at Stanford
- "Predicting and Using Monocular Depth for Deep Driving", invited talk at TTIC, Chicago
- "Beyond Supervised Driving", oral presentation at GTC'19, San Jose, [↗](#)
- "Beyond Supervised Driving", talk at the ML Tokyo Meetup, Tokyo [↗](#)
- "Beyond Supervised Driving", talk at the Deep Learning Summit, San Francisco [↗](#) video [↗](#)
- "Beyond Supervised Driving", talk at AMLD, EPFL [↗](#)
- "Predicting and Using Monocular Depth for Deep Driving", invited talk at Mapillary, Graz, Austria
- "Beyond Supervised Driving", invited talk at Naver Labs Europe, Grenoble, France
- 2018 "Advancing Autonomous Vehicle Development Using Distributed Deep Learning", talk at AWS re:Invent, Las Vegas [↗](#)
- Hacker Dojo Course on Autonomous Vehicles, Santa Clara [↗](#)
- "Beyond Supervised Driving" invited talk at University of Amsterdam, NL, video [↗](#)
- "Bridging the gap between fundamental research and product development at TRI by applying techniques from AI and ML" invited talk at World Summit AI, Amsterdam, NL [↗](#)
- "Beyond Supervised Driving" invited talk at the Beyond Supervised Learning workshop, CVPR 2018, Salt Lake City, [↗](#)
- "Living on the edge case: how autonomous vehicles can deal with an extremely messy world", panel discussion at The Autonomous Vehicle Summit, San Francisco [↗](#) , Recording [↗](#)
- "Advancing State-of-the-Art of Autonomous Vehicles and Robotics Research using AWS GPU Instances", invited talk at GTC 2018 [↗](#)
- "Deep Learning and Simulation for Automated Driving at Scale" invited talk at the Auto AI Conference, San Francisco
- "Simulation and Deep Learning for Autonomous Driving" invited talk at University of Washington
- 2017 Panel discussion and invited talk on "Deep Learning and Simulation for real-world Machine Intelligence in Autonomous Driving" at NIPS 2017 ML for Intelligent Transportation Systems [↗](#)
- "Need for Sim: Procedural Generation of Realistic Driving Environments and Human Actions for Deep Learning", invited talk at Google Brain, Mountain View
- "Need for Sim: Procedural Generation of Realistic Driving Environments and Human Actions for Deep Learning", IV 2017 Deep Driving workshop
- 2016 "Realistic Virtual Worlds and Human Actions for Video Understanding" demo at NIPS 2016
- Invited talks at Zoox, San Francisco; THOTH, Inria, France; Philips Research, Paris, France
- Virtual Worlds for Computer Vision demo at CVPR 2016, Las Vegas
- 2014 Self-Learning Camera demo at ECCV 2014
- Invited presentation at the TASK-CV workshop at ECCV 2014
- Invited talk at LEAR - Inria Grenoble, France
- 2013 Invited talk at ERMITES Summer School, France
- Invited talk at Xerox Research Center Europe, France



- 2012 Invited talk at the MSR - Inria CVML workshop, Microsoft Research, Cambridge, UK  
Invited talk at ETH Zürich, Switzerland  
Invited talk at the Xerox Research Center Europe (XRCE), Meylan, France
- 2011 Invited talk at the GdR ISIS, CNRS, Paris  
Invited talk at the Computer Vision Center (CVC), Autonomous University of Barcelona, Spain  
Technical demo at the Microsoft Research - Inria forum, Paris, France
- 2010 Invited talk at the Visual Geometry Group, University of Oxford, UK  
Invited talk at the Microsoft Research - Inria vision workshop, Paris, France

## — Collaboration

- 2017- Collaboration with Stanford, CMU, MIT, and Berkeley on multiple ML projects spanning perception, prediction, planning, and control for embodied intelligence.
- 2018 Internship supervisor of Felipe Codevilla with Eder Santana and Antonio Lopez (CVC)
- 2017 Internship supervisor of Shyamal Buch with Juan Carlos Nieves (Stanford)
- 2015-2017 PhD co-supervisor of Cesar de Souza on Learning Representations for Behavior Understanding in Videos, collaboration with Professor Antonio Lopez at the Computer Vision Center of the Autonomous University of Barcelona (UAB), Spain
- 2015-2016 Co-supervisor of Vladyslav Sydorov on human pose estimation in videos, collaboration with Karteek Alahari and Cordelia Schmid at Inria, France
- 2015-2016 Internship supervisor of Yohann Cabon on virtual worlds for video analytics
  - 2015 Internship co-supervisor of Qiao Wang on virtual worlds for multi-object tracking analysis
  - 2014 Internship co-supervisor of Gloria Zen on self-learning cameras