German Ros

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About me

Managing international R&D teams to transform research results into impactful solutions that land in products and services. I am a big open source advocate, creating new strategies to balance software openness and business revenue.

Work Experience

2021–Present **Director, Autonomous Agents Lab**, *Intel Labs*, Santa Clara, CA.
- Managing an international and distributed research lab (+10 direct reports) to pivot from fundamental research to product revenue in the space of 3D AI, Simulation for AI, Digital Twins, and Sim-to-Real.
- Leading research collaborations with academia and industry partners, producing shared IP (+10 IDFs, +5 publications).
- Creating new corporate channels to build brand-new products and services from research results within 2 quarters.
- Leading the creation of new products in the spaces of AI, 3D Content Creation, and Simulation platforms with an estimated revenue of +200 M USD.
- Leading the R&D strategy for Digital Twins, Simulation for AI, and 3D Content Creation solutions.
- Mentoring of researchers and engineers on career progression and growth (+5 promotions in the last 2 years).

2021–Present **Principal Investigator, DARPA RACER-SIM**, *Intel Labs*, Santa Clara, CA.
- Managing an international consortium (Intel, The University of Texas at Austin, Computer Vision Center,) with +30 headcounts to create the next generation of simulation solutions in the space of off-road ground robots for the US Department of Defense.
- Leading the technical development of new real-time terramechanics simulation algorithms using machine learning.
- Leading the technical development of new Digital Twins solutions for large off-road environments.

2018–2021 **Sr. Staff Scientist**, *Intel Labs*, Santa Clara, CA.
- Served as the program lead for 3D Vision, driving research and technology transfer of novel solutions in the space of 3D Scene Understanding and 3D Reconstruction.
- Served as the program lead for Simulation for Autonomous Systems, creating new solutions to accelerate and standardize the training and validation of autonomous systems. Helped 7+ industry partners to solve problems in the space of Autonomous Systems through simulation.
- Managed an international and distributed team to create new simulation solutions to enable the training and validation of autonomous driving systems for General Motors.
- Drove the creation of large communities around open-source projects such as CARLA (from 0 to +200K users) and Open3D (from 100 to +150K users). CARLA is now considered the top-1 autonomous driving simulator, widely used in academia, industry, and government institutions (e.g., DOT, DOE, DOD). Open3D was designated by the Python community as a critical project (top 1% project in downloads over 6 months).
- Developed new AI-powered techniques in the space of sensor simulation, physics simulation, and Sim-to-Real.

2018–2020 **Co-founder, OSVF.org: Open Source Vision Foundation**, *OSVF.org*, Palo Alto.
- Created a non-profit organization to drive the growth of open-source projects in the space of AI, Computer Vision, and Simulation.
- Raised +3M USD in funding over 2 years through sponsorships and contracts.
- Grew a team of +20 engineers to develop new solutions based on open-source projects (e.g., CARLA).

2017–2018 **Research Scientist**, *Toyota Research Institute*, Los Altos, CA.
- Carried out research in computer vision for Autonomous Driving and Sim-to-Real technologies.
- Created and managed the sensor simulation team, providing new simulation tools for the evaluation of autonomous driving systems end-to-end.
- Served as the coordinator of research collaborations with the University of Michigan.

2016 **R&D Contractor**, *Yandex*, Remote.
- Developed new algorithms for change detection using deep learning techniques and synthetic data.

Education

2011–2016 **PhD in Computer Vision (Cum Laude)**, *Universitat Autonoma de Barcelona, CVC*, Spain.
2011–2012 **MSc in Computer Vision and Artificial Intelligence**, *Universitat Autonoma de Barcelona*, Spain.
2010–2011 **MSc in Computer Vision and Image Analysis**, *Kingston University of London*, UK, *1st class*.
2005–2010 **BSc in Computer Science (Hons., Cum Laude)**, *University of Murcia*, Spain, *1st class*.

Patents

2022 **Inferring locations of 3D objects in a spatial environment**.
2021 **System and method for system-aware classifiers**.
2020 **Adversarial learning of photorealistic post-processing of simulation with privileged information**.
2020 **Inferring locations of 3D objects in a spatial environment**.
2020 **System and method for generating improved synthetic images**.
2020 **Method and apparatus for a manifold view of space**.
2020 **Systems and methods for conditional image translation**.
2019 **System and method for full-stack verification of autonomous agents**.
2019 **Virtually boosted training**.
2018 **Training constrained deconvolutional networks for road scene semantic segmentation**.

Skills

R&D Manager, Leadership, Applied Research & Development, Tech. transference & Productization, 3D Vision, Simulation for Autonomous Systems, Sim-to-Real, Machine Learning, Game engines, Rendering.

Languages

Spanish: Native; **English:** Proficient user; **Catalan:** Basic user; **Japanese:** Basic user

Selected Awards & Honours

2021 **National Research Award for Public-private Partnership in Innovation**, *Barcelona, Spain*.
2016 **Honors, Cum Laude PhD Thesis**, *Barcelona, Spain*.
2016 **Finalist for Best System Paper Award at the Robotics Science and Systems (RSS) conference**, *Award given by the RSS consortium to outstanding systems papers presented at the RSS conference.*, Michigan, USA.
2010 **Honourable mention Computer Science, 1st class**, *Promotion 2005–2010*, Murcia, Spain.
2009 **Award of excellence in academic performance**, *Top 10 student in Science*, Murcia, Spain.

Selected Publications

K.-H. Lee, G. Ros, J. Li, and A. Gaidon, "SPIGAN: Privileged adversarial learning from simulation," in *International Conference on Learning Representations*, 2019.

A. Dosovitskiy, G. Ros, F. Codevilla, A. Lopez, and V. Koltun, "CARLA: An open urban driving simulator," in *Conference on Robot Learning (CORL)*, (Mountain View, CA, US), 2017.

P. Alcantarilla, S. Stent, G. Ros, R. Arroyo, and R. Gherardi, "Street-view change detection with deconvolutional networks," in *Robotics: Science and Systems (RSS), Michigan, USA*, June 2016.

G. Ros, L. Sellart, J. Materzynska, D. Vazquez, and A. Lopez, "The SYNTHIA dataset: A large collection of synthetic images for semantic segmentation of urban scenes," in *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, (Las Vegas, USA (short oral)), 2016.

Additional publications: Google Scholar | **Citations:** +5,300