German Ros, PhD

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Location: San Francisco Bay Area, CA — Citizen of Spain — US Green Card Holder.

About me

Managing large distributed R&D teams in the space of AI and simulation for Embodied AI. Author of CARLA, the top Autonomous Driving simulator. Transforming research results into novel solutions that land in impactful products and services. I am a big open-source advocate and actively work on creating new strategies to balance software openness and business revenue. I target the creation of large communities and ecosystems around our products.

Work Experience

2023-Present   **Director, Simulation Ecosystem Development**, *NVIDIA*, Santa Clara, CA
- Creating new products in the space of Simulation for Autonomous Driving, focused on sensor simulation and tooling for autonomous systems validation.
- Leading the CARLA organization, providing novel solutions in the space of autonomous systems to partners, customers, and the research community.

2021–2023   **Director, Autonomous Agents Lab**, *Intel Labs*, Santa Clara, CA
- Managing an international and distributed AI research lab focused on creating new research results and transferring them to production. Space: Simulation for Autonomous Driving, Simulation for Robotics, 3D AI, generative AI, Digital Twins, and Sim-to-Real.
- Leading research collaborations with academia and industry partners.
- Creating new corporate channels to build brand-new products and services from research results.
- 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 Generative AI, 3D Content Creation, and Digital Twins 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.

2015 **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:** +6,500