

Diego Porres

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SUMMARY

Machine Learning Researcher specializing in attention mechanisms for autonomous driving used in end-to-end driving and generative models. PhD in Computer Science with expertise in end-to-end learning, model interpretability, and computer vision. Research published at IEEE IROS, IV, as well as CVPR and NeurIPS workshops, focusing on improving sample efficiency and explainability in vision-based systems. Experienced in developing novel training methodologies that bridge theoretical understanding with practical applications in autonomous driving and creative AI.

EDUCATION

Universitat Autònoma de Barcelona , Ph.D. in Computer Science	Sep 2019 – Dec 2024
▪ Thesis title: <i>Guiding AI Attention for Driving and Creative Generation</i> . Grade: A, Cum laude .	
Université Côte d'Azur , Master of Mathematics and Interactions, with Specialty in Pure and Applied Mathematics	Sep 2015 – Sep 2017
Università degli Studi dell'Aquila , MSc. in Mathematical Engineering	Sep 2015 – Sep 2017
Universidad del Valle de Guatemala , BSc. in Physics	Jan 2007 – Nov 2012

PUBLICATIONS

CONFERENCES

Diego Porres, Yi Xiao, Gabriel Villalonga, Alexandre François Levy, Antonio M. López, “[Guiding Attention in End-to-End Driving Models](#)”, IEEE Intelligent Vehicles Symposium (IV) 2024.

- Proposed a novel *Attention Loss* for training-time guidance of vision-based end-to-end driving models
- Demonstrated improved sample efficiency in low-data regimes without architectural modifications
- Achieved more interpretable activation maps while improving driving performance

Yi Xiao, Felipe Codevilla, Diego Porres, Antonio M. López, “[Scaling Vision-based End-to-End Driving with Multi-View Attention Learning](#)”, IEEE/RSJ International Conference on Intelligent Robots and Systems 2023.

- Co-developed CIL++, a vision-based end-to-end driving baseline with multi-view attention, showing that properly scaling vision-based end-to-end driving models allows them to perform on par with models that require additional modalities
- See it driving a real vehicle in the Spanish Pyrenees [here](#)

WORKSHOPS

Diego Porres, “[Towards Kinetic Manipulation of the Latent Space](#)”, NeurIPS 2024 Creative AI Track

- Introduced *visual-reactive interpolation*, a new paradigm for real-time latent space manipulation using live camera feeds
- Demonstrated simple CNN feature extraction enables fine control of generative models without specialized hardware
- Initial tests done with [StyleGAN3](#) (static and live demos; [code](#)), later expanded to text-to-image models ([live demo](#); [code](#))

Diego Porres and Alex Gomez-Villa, “[At the edge of a generative cultural precipice](#)”, CVPR Fourth Workshop on Ethical Considerations in Creative Applications of Computer Vision 2024, Seattle, USA.

- Analyzed sustainability and data scarcity challenges in training large-scale generative models and their implications for both new models and incoming artists

Diego Porres, “[Discriminator Synthesis: On reusing the other half of Generative Adversarial Networks](#)”, NeurIPS Workshop on Machine Learning for Creativity and Design 2021, Online.

- Call-to-action to repurpose the typically-discarded GAN Discriminators for novel image synthesis tasks

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher - [Computer Vision Center](#), ADAS Team

Jan 2025 – Present

- Developed human-style-informed autonomous driving models as part of the [BERTHA](#) (Horizon Europe) project, resulting in better long-tail event handling, analysis, and interpretability
- Leveraging multimodal generalist foundation models for improving generalization in autonomous driving and infrastructure monitoring, using over 6,000 km road dataset from the Generalitat de Catalunya as part of the [ELLIOT project](#) (UC 4.1 and 4.2), and involved in the decisions for the data collection for the above dataset
- Supervising PhD students and Master's/Bachelor's interns on research projects in attention mechanisms, explainable AI, memory, vehicle-to-everything (V2X), federated learning, and general computer vision

PhD Researcher - [Computer Vision Center](#), ADAS Team

Sep 2019 – Dec 2024

- Published 2 conference papers (IROS, IV) and 3 workshop papers (NeurIPS, CVPR) on attention mechanisms and generative models
- Created open-source tools for latent space manipulation in generative models ([StyleGAN3](#)) and contributed to multiple open-source repositories ([EarthView dataset](#), [U2Net](#), [CARLA Garage](#), [DragGAN](#), [StyleGAN2-ADA](#), [diffusers](#))
- During the COVID-19 pandemic, worked remotely on the first cohort of [Snap](#)'s AR Creator Residency Program, resulting in the [Huipil HairStyle](#) Lens, which transfers the style of a *huipil* to the user's hair
- Showcased my GenAI art in multiple venues such as the NeurIPS Workshop on ML for Creativity and Design 2018, 2020, 2021, 2022, 2023, Museo Ixchel de Traje Indígena - 2022, and CVPR Art Gallery 2023 and 2024