Eduardo **Alvarado**

PH.D. IN VIRTUAL AVATARS AND HUMAN MOTION

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alvaradopineroeduardo | Eduardo Alvarado

Education

Ph.D. in Virtual Avatars and Human Motion
Palaiseau, France

ÉCOLE POLYTECHNIQUE, LIX
Oct. 2020 - Oct. 2023

- Topic: Efficient Models for Human Locomotion and Interaction in Natural Environments.
- Supervisors: **Prof. Damien Rohmer** and **Prof. Marie-Paule Cani**.
- Funding: European Union's Horizon 2020 Research Programme. Marie Skłodowska-Curie Grant Agreement n. 860768 (CLIPE project).

M.Sc. in Embedded Systems and AI
Freiburg, Germany

ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG
Apr. 2017 - Nov. 2019

- Framework: Robotics, Computer Vision, Machine Learning, Deep Learning and Reinforcement Learning.
- Thesis: Deep Multimodal Learning for Autonomous Driving.
- Supervisors: **Prof. Joschka Bödecker** and **Prof. Abhinav Valada**.

B.Sc. in Electronics and Automation Engineering
Madrid, Spain

UNIVERSIDAD CARLOS III - POZNAN UNIVERSITY OF TECHNOLOGY (ERASMUS)
Sep. 2010 - Sep. 2014

- Framework: Digital/Analog Electronics, CS, Robotics and Control Engineering.
- Thesis: Development of a localization-based AR framework in C++ for smart glasses.
- Supervisors: **Prof. Angel Garcia Crespo**.

Academic & Industry Experience

Postdoctoral Researcher - Virtual Avatars and Human Motion
Saarbrücken, Germany

MAX PLANCK INSTITUTE FOR INFORMATICS
Jan. 2024 - Currently

- Research on plausible human avatars and locomotion models using data-driven and physics-based approaches.
- Supervisors: **Prof. Christian Theobalt** and **Dr. Marc Habermann**.

Ph.D. Intern
Bordeaux, France

UBISOFT LA FORGE
Mar. 2023 - Jun. 2023

- Topic: Development of authoring tools for the production stages of crowd/character animation.

Research Scientist - AI for Material Rendering
Stuttgart, Germany

INSTALOD GMBH
Jun. 2020 - Sep. 2020

- Research on AI (Image Processing, GANs) for 3D Materials Synthesis (SVBRDFs) with focus on the game- and film-industry.

M.Sc. Thesis - Deep Multimodal Learning for Autonomous Driving
Renningen, Germany

ROBERT BOSCH GMBH
May 2019 - Nov. 2019

- Research on novel Object Tracking and Detection methods using DL-based representations in the field of sensor-fusion for Autonomous Driving.

Research Assistant - Autonomous Intelligent Systems
Freiburg, Germany

ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG
Sep. 2017 - Feb. 2019

- TurtleBot3 Waffle HW/SW setup for teleoperation, SLAM and indoor mapping.

M.Sc. Intern - Dev-tools Engineer for Autonomous Driving
Friedrichshafen, Germany

ZF FRIEDRICHSHAFEN AG
Apr. 2018 - Oct. 2018

- ROS tools development and integration of closed-loop systems in simulated and real environments on-board, for manipulation and visualization of vehicle data.

Languages

Spanish	Native	**English**	Fluent	**German**	Fluent	**French**	Intermediate

Skills

Programming	Python, C#, C++, LaTeX	**Game/3D**	Unity, Unreal Engine, Blender	**Robotics**	ROS, Gazebo
AI	PyTorch, Tensorflow	**OS**	Windows, Linux	**SW-Dev**	CMake, Visual Studio, PyCharm, Git

Academic Activities

Teaching Assistant for INF633 - Advanced 3D Graphics
Palaiseau, France

École Polytechnique
Oct. 2020 - Oct. 2023

- Topic: Ecosystems Authoring, Procedural Animations, AI for Behavior Planning.

Research Visitor
Nicosia, Cyprus

CYENS Centre of Excellence
Jul. 2021 - Oct. 2021

- Topic: Character Animation with focus on Motion Capture and Motion Matching.
- Supervisor: Prof. Yiorgos Chrysanthou.

Research Visitor
Barcelona, Spain

Universitat Politècnica de Catalunya
Sep. 2022 - Dec. 2022

- Topic: Crowds Authoring in Natural Environments.
- Supervisor: Prof. Nuria Pelechano.

Reviewer / Committee
Worldwide

SIGGRAPH, SIGGRAPH ASIA, IEEE VR, TVCG, Eurographics (PC), CEIG (PC), CASA (PC)
Oct. 2020 - Currently

Publications
PEER-REVIEWED JOURNAL AND CONFERENCE ARTICLES

FRAME: Floor-aligned Representation for Avatar Motion from Egocentric Video (⌂📄▶)

Andrea Boscolo Camiletto, Jian Wang, **Eduardo Alvarado**, Rishabh Dabral, Thabo Beeler, Marc Habermann, Christian Theobalt

Computer Vision and Pattern Recognition (CVPR), 2025

BimArt: A Unified Approach for the Synthesis of 3D Bimanual Interaction with Articulated Objects (⌂📄▶)

Wanyue Zhang, Rishabh Dabral, Vladislav Golyanik, Vasileios Choutas, **Eduardo Alvarado**, Thabo Beeler, Marc Habermann, Christian Theobalt

Computer Vision and Pattern Recognition (CVPR), 2025

TRAIL: Simulating the Impact of Human Locomotion on Natural Landscapes (⌂📄▶)

Eduardo Alvarado, Oscar Argudo, Damien Rohmer, Marie-Paule Cani, Nuria Pelechano

Computer Graphics International (CGI), 2024

How Much Do We Pay Attention? A Comparative Study of User Gaze and Synthetic Vision during Navigation (📄)

Julia Melgare, Guido Mainardi, **Eduardo Alvarado**, Damien Rohmer, Marie-Paule Cani, Soraia Musse

Poster, Motion, Interactions and Games (MIG), 2023

Generating Upper-Body Motion for Real-Time Characters Making their Way through Dynamic Environments (⌂📄▶)

Eduardo Alvarado, Damien Rohmer, Marie-Paule Cani

*Proceedings of the ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA), 2022 - **Best Paper Honorable Mention Award***

Real-Time Locomotion on Soft Grounds With Dynamic Footprints (⌂📄▶)

Eduardo Alvarado, Chloé Paliard, Damien Rohmer, Marie-Paule Cani

Frontiers in Virtual Reality, Frontiers, 2022, 3, (10.3389/frvir.2022.801856)

A Survey on Reinforcement Learning Methods in Character Animation (📄)

Ariel Kwiatkowski, **Eduardo Alvarado**, Vicky Kalogeiton, Karen C. Liu, Julien Pettré, Michiel van de Panne, Marie-Paule Cani

Eurographics 2022, Computer Graphics Forum, Wiley, 2022, pp.1-27. (10.1111/cgf.14504)

Soft Walks: Real-Time, Two-Ways Interaction between a Character and Loose Grounds (⌂📄▶)

Chloé Paliard, **Eduardo Alvarado**, Damien Rohmer, Marie-Paule Cani

Eurographics 2021 (short), May 2021, Vienna, Austria.

Dissemination Activities

PhD Research. "Present and Future of Character Animation"
Saarbrücken, Germany

Max Planck Institute for Informatics
Oct. 2022

Summer School Youth Program. "Can AI be Creative? Using AI for Animation"
Palaiseau, France

HEC Business School
Jul. 2022

Workshop on Virtual Humans and Crowds in Immersive Environments (VHCIE)
Online

IEEE VR 2022
Mar. 2022

PhD Research in Motion Matching and Motion Capture
Nicosia, Cyprus

CYENS Centre of Excellence
Sep. 2021

Interests

I love skiing. Every year I try to visit a different place to practice it with friends and family. I also like to keep myself regularly informed about new developments in robotics and AI, trying to get my nieces interested in them as well. In my spare time, I work on my photography portfolio and my personal blog about game-dev. Someday I would love to create my own studio. When I get the chance, I enjoy working on electronics projects, as well as reading about fields that are new for me.