

# Eduardo Alvarado

PH.D. IN VIRTUAL AVATARS AND HUMAN MOTION

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## Education

### Ph.D. in Virtual Avatars and Human Motion

ÉCOLE POLYTECHNIQUE, LIX

Palaiseau, France

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 (CLIFE project).

### M.Sc. in Embedded Systems and AI

ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG

Freiburg, Germany

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

UNIVERSIDAD CARLOS III - POZNAN UNIVERSITY OF TECHNOLOGY (ERASMUS)

Madrid, Spain

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

MAX PLANCK INSTITUTE FOR INFORMATICS

Saarbrücken, Germany

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

UBISOFT LA FORGE

Bordeaux, France

Mar. 2023 - Jun. 2023

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

### Research Scientist - AI for Material Rendering

INSTALOD GMBH

Stuttgart, Germany

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

ROBERT BOSCH GMBH

Renningen, Germany

May 2019 - Nov. 2019

- Topic: Sensor-fusion algorithms (Radar, RGB) for Autonomous Driving.

### Research Assistant - Autonomous Intelligent Systems

ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG

Freiburg, Germany

Sep. 2017 - Feb. 2019

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

## Languages

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

## Skills

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

## Academic Activities

### Teaching Assistant for INF633 - Advanced 3D Graphics

ÉCOLE POLYTECHNIQUE

Palaiseau, France

Oct. 2020 - Oct. 2023

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

## Research Visitor

CYENS CENTRE OF EXCELLENCE

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

Nicosia, Cyprus

Jul. 2021 - Oct. 2021

## Research Visitor

UNIVERSITAT POLITÈCNICA DE CATALUNYA

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

Barcelona, Spain

Sep. 2022 - Dec. 2022

## Reviewer / Committee

SIGGRAPH, SIGGRAPH ASIA, IEEE VR, TVCG, EUROGRAPHICS (PC), CEIG (PC), CASA (PC)

Worldwide

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"

MAX PLANCK INSTITUTE FOR INFORMATICS

Saarbrücken, Germany

Oct. 2022

### Summer School Youth Program. "Can AI be Creative? Using AI for Animation"

HEC BUSINESS SCHOOL

Palaiseau, France

Jul. 2022

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

IEEE VR 2022

Online

Mar. 2022

### PhD Research in Motion Matching and Motion Capture

CYENS CENTRE OF EXCELLENCE

Nicosia, Cyprus

Sep. 2021

### Doctoral Consortium

EUROGRAPHICS 2021

Online

May 2021

## Interests

I'm passionate about skiing and make it a point to explore a new destination each year with friends and family. I stay actively engaged with the latest developments in robotics and AI, often sharing that curiosity with my nieces to spark their interest. In my spare time, I work on my photography portfolio and contribute to my personal blog focused on game dev where I hope to one day launch my own startup. I also enjoy hands-on DIY projects and diving into unfamiliar fields through reading and exploration.