

# Eduardo Alvarado

PH.D. CANDIDATE IN 3D ANIMATION AND COMPUTER GRAPHICS

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👤 Eduardo Alvarado

## Education

### Ph.D. in 3D Animation and Computer Graphics

Palaiseau, France

ÉCOLE POLYTECHNIQUE, LIX

Oct. 2020 - Oct. 2023

- Topic: Groups of Humans and Animals in Natural Environments: A Multi-Scale Approach.
- Supervisors: Prof. Damien Rohmer, 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 Engineering

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.

### B.Sc. in Electronics and Automation Engineering

Madrid, Spain

UNIVERSIDAD CARLOS III

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.
- Activities: ERASMUS Scholarship (6 months) at Poznan University of Technology, Poland. Focus on Image/Video Processing.

## Academic & Industry Experience

### 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 - Computer Graphics and AI

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

- Supervisors: Prof. Joschka Bödecker, Prof. Abhinav Valada.
- 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

- Integration of Autonomous Driving simulations (Unreal Engine 4) with AirSim and ROS for the virtual acquisition of camera- and LiDAR-data.
- TurtleBot3 Waffle HW/SW set-up 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.

### Business Strategy Analyst - Robotics and 3D Printers

Madrid, Spain

BQ MUNDO READER S.L.

Nov. 2014 - May 2016

- Responsible for Strategy Planning. In-depth knowledge of Additive Manufacturing and project management in the Industry 4.0 sector.
- Channel Distribution Manager. Lecturer for robotics workshops and trainings for international groups, clients and educational institutions.
- QA Engineer. Involvement in the development and quality-monitoring of robotic and 3D printing projects (Arduino, Raspberry Pi, C++/Python).

## Teaching Experience

### TA for INF633 - Advanced 3D Graphics

Palaiseau, France

ÉCOLE POLYTECHNIQUE

Oct. 2020 - Oct. 2021

- Lab coordinator under the supervision of Prof. Marie-Paule Cani.
- Technical Art in Unity: Ecosystems Authoring, Procedural Animations, AI for Behavior Planning.

# Voluntary Work

## Public Relations Manager - Active Member

BEST UC3M

Madrid, Spain

Sep. 2012 - May 2015

- BEST CARLOS III (Board of European Students of Technology): Engineering association with presence in 33 countries and 96 universities.
- BEST Summer School: Light Weight Structures. Vrije Universiteit, Brussels, Jul. 2012.
- BEST Summer School: Energy Engineering. University Carlos III, Madrid, Jul. 2013.

# Languages

**Spanish** Native   **English** Proficient (TOEFL iBT 104 pts)   **German** Proficient (TELC Zertifikat B2)   **French** Intermediate

# Skills

<b>Programming</b>	Python, C#, C++, Latex	<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

## Research Visitor

CYENS CENTRE OF EXCELLENCE

Nicosia, Cyprus

Jul. 2021 - Oct. 2021

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

## Research Visitor

UNIVERSITAT POLITÈCNICA DE CATALUNYA

Barcelona, Spain

Sep. 2022 - Dec. 2022

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

# Publications

PEER-REVIEWED JOURNAL AND CONFERENCE ARTICLES

## 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*

## 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

*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 (Short), May 2021, Vienna, Austria. (hal-03200160v3)*

# Dissemination Activities

## INVITED TALKS

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

HEC BUSINESS SCHOOL

Palaiseau, France

Jul. 2022

### GeoViC Research Group for M.Sc. students

ÉCOLE POLYTECHNIQUE

Palaiseau, France

May 2022

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

IEEE VR 2022

Online

Mar. 2022

### PhD Research in Character Animation

INRIA

Rennes, France

Mar. 2022

### PhD Research in Motion Matching and Motion Capture

CYENS CENTRE OF EXCELLENCE

Nicosia, Cyprus

Sep. 2021

## PhD Research in Character Animation

CLIFE INTERNAL WORKSHOP ON VIRTUAL HUMANS

*Ayia Napa, Cyprus*

*Sep. 2021*

## OTHER DISSEMINATION ACTIVITIES

### GeoViC Research Group for M.Sc. students

IDIA DAY (COMPUTER SCIENCE, DATA & AI) AT IP PARIS

*Palaiseau, France*

*Jun. 2021*

### Doctoral Consortium

EUROGRAPHICS

*Online*

*May 2021*

## Interests

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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.