# Jose Luis Ponton

Ph.D. Student · Computer Animation · XR · Computer Graphics

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## Education

### Universitat Politècnica de Catalunya
*Barcelona, Spain*

Ph.D. in Computing — *Nov. 2022 - Present*

- Expected graduation date: December 2025.
- Researching and developing deep learning-based tools to advance human motion understanding and provide high-quality avatar motion in VR applications.
- Supervisors: Nuria Pelechano and Carlos Andujar.
- Awarded a Ph.D. scholarship FPU 2021 (code FPU21/01927) from the Spanish Administration.

### Universitat Politècnica de Catalunya
*Barcelona, Spain*

M.Sc. in Innovation and Research in Informatics — *Sep. 2020 - Jul. 2022*

- Grade: 9.15/10.00
- Specialization in Computer Graphics and Virtual Reality
- Thesis: Motion Matching for Character Animation and Virtual Reality Avatars in Unity

### Universitat Politècnica de Catalunya
*Barcelona, Spain*

B.S. in Computer Science and Engineering — *Sep. 2016 - Jul. 2020*

- Grade: 9.03/10.00 (Rank 3 of 239).
- Thesis: Navigation and collaboration techniques for Virtual Reality.

## Experience

### Hyper Online
*Remote*

Freelance — *Feb. 2024*

- Developed a pipeline and retargeting method for animating full-body rigged 3D avatars with hands from positional joint information extracted from cameras.

### ViRVIG Research Group - Universitat Politècnica de Catalunya
*Barcelona, Spain*

Researcher — *May. 2021 - Nov. 2022*

- Researched real-time motion synthesis for character animation and VR avatars: Deep Learning, Motion Matching, IK and Motion Capture.
- Developed an open-source Unity package to easily integrate VR self-avatars to any application. https://github.com/UPC-ViRVIG/AvatarGo

### CYENS Centre of Excellence
*Nicosia, Cyprus*

Research Intern — *Jul. 2022 - Sep. 2022*

- Researched Deep Learning for data-driven character animation from sparse input data.
- Supervisor: Dr. Andreas Aristidou.

### ViRVIG Research Group - Universitat Politècnica de Catalunya
*Barcelona, Spain*

Research Intern — *Apr. 2019 - Apr. 2021*

- Developed collaborative VR and AR tools for visualizing and interacting with architectural designs. Project in collaboration with Temple Expiatori de la Sagrada Família.

## Skills

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|---|---|
| **Programming** | Python, C#, C++, LaTeX, R, CUDA, GLSL/HLSL |
| **Game Engines/Libraries/SW** | Unity, PyTorch, Blender, Git, SteamVR, Oculus, ARCore |
| **Languages** | English, Spanish, Catalan |

## Publications

### SparsePoser: Real-time Full-body Motion Reconstruction from Sparse Data

Jose Luis Ponton, Haoran Yun, Andreas Aristidou, Carlos Andujar, Nuria Pelechano

SIGGRAPH Asia 2023. Dec. 2023. Sydney. Australia. ACM Transactions on Graphics. (10.1145/3625264).

**Fitted avatars: automatic skeleton adjustment for self-avatars in virtual reality**

Jose Luis Ponton, Víctor Ceballos, Lesly Acosta, Alejandro Ríos, Eva Monclús, Nuria Pelechano

Virtual Reality. Springer. Jul. 2023. (10.1007/s10055-023-00821-z)

**Animation Fidelity in Self-Avatars: Impact on User Performance and Sense of Agency**

Haoran Yun, Jose Luis Ponton, Carlos Andujar, Nuria Pelechano

30th IEEE Conference on Virtual Reality and 3D User Interfaces. Mar. 2023. Shanghai, China. (10.1109/VR55154.2023.00044)

**Combining Motion Matching and Orientation Prediction to Animate Avatars for Consumer-Grade VR Devices**

Jose Luis Ponton, Haoran Yun, Carlos Andujar, Nuria Pelechano

ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA). Sep. 2022. Durham, United Kingdom.

Computer Graphics Forum. (10.1111/cgf.14628).

**AvatarGo: Plug and Play self-avatars for VR**

Jose Luis Ponton, Eva Monclus, Nuria Pelechano

Eurographics 2022 - Short Papers. May. 2022. Reims, France. (10.2312/egs.20221037).

# Selected Projects

Please, visit my website for a complete list of my projects: https://joseluisponton.com/projects

**Motion Matching (over 250 stars on GitHub)**

Motion Matching implementation for the Unity game engine. It includes a spring-based character controller, BVH-accelerated search, inertialization blending, automatic and customizable feature extraction/selection, foot lock, tags, among other features. https://github.com/JLPM22/MotionMatching

**PyMotion**

Python library for manipulating and processing motion data in NumPy or PyTorch. It is designed to facilitate the development of neural networks for character animation. Features: quaternion operations and conversions to other rotation representations; dual quaternions; BVH importer/exporter; skeletal operations such as forward kinematics. https://github.com/UPC-ViRVIG/pymotion