Luis Carranza

Contact Information

PhD student, ViRVIG Lab
Universitat Politècnica de Catalunya

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Research Interest

My research interests lie within Computer Graphics, Computer Vision and applied Machine Learning. My current research aims to train humanoid agents in physically based environments to perform sport activities using Reinforcement Learning. During my master's thesis, I adapted lava flow methods to create an application to model and author lava animations and terrain from lava solidification. During my bachelor's studies, I implemented a 3D reconstruction pipeline to recover shattered archeological potteries, by extracting depth maps from multiple angles of a 3D mesh. I trained a multi-view GAN model which receives depth maps and returns them with the fractures filled, and retro project the results to recover the 3D object. With working experience in businesses, my ambition is to remove the gap between the real world and what computers can understand and reproduce from it.

Education

PhD in Computer Science — *September 2023 – Present*
Universitat Politècnica de Catalunya (UPC), Barcelona, Spain

M.S. in Computer Science — *September 2021 – July 2023*
Universitat Politècnica de Catalunya (UPC), Barcelona, Spain
GPA: 8.55/10.0

B.S. in Informatics Engineering — *March 2015 - August 2020*
Pontificia Universidad Católica del Perú (PUCP), Lima, Perú
GPA: 15.13/20.0

Professional Experience

Research Intern, HP Project Team, ViRVIG Lab — *October 2022 – October 2023*
Mentor: *PhD. Antonio Chica*
Project: **Geometric Operations for industrial HP 3D printers**

- Develop a library to transform 3D models into slices a 3D printer can process
- Designed and implemented optimized geometric processing algorithms with C++ by using data structures such as cube maps and rays
- Implemented parallel programming functions with OpenMP

Software Engineer, Tuxpas from Meta — *January 2021 – December 2021*
Projects: **Data Engineering and Cloud Architectures**

- Designed and developed data lake processes for +1M transactions with PySpark and using AWS services
- Designed and budgeted +10 Cloud Architectures for Data Engineering and Data Analytics projects

Intern, Project Management Office, Huawei — *August 2020 – December 2020*
Project: **Material Control Management for 5G Optic Fiber Installations**

- Managed projects in +10 different cities simultaneously with +5 contractors

Full-Stack Intern, Assurance, Ernst & Young *May 2018 – October 2018*
Project: **Software Development System for Corporate Compliance**

- Reduced backend algorithms time complexity with data structures using C# in .NET Framework

Academic Experience

Research Assistant, ViRVIG Lab, UPC *August 2022 – Present*
Advisor: *PhD. Oscar Argudo*
Project: **Simulation and authoring of lava flows in virtual terrains**

- Adapted MOLASSES and MAGFLOW lava flow methods to simulate animations and interactive authoring
- Simulated lava flows to generate volcanoes

Research Assistant, IA-PUCP, PUCP *March 2019 – December 2020*
Advisor: PhD. *Ivan Sipirán*
Project: **3D Reconstruction of Incomplete Archaeological Objects through Deep Learning using multi-view images**

- Generated +12k samples for dataset using OpenGL and Blender
- Implemented and trained a multi-view GAN model using Pytorch
- Developed a web application to use this model with React and Flask

Skills

Programming Languages: C/C++, C#, Python, HTML, CSS, SQL
Frameworks: OpenGL, PyTorch, IsaacGym, Taichi, AWS, React, VueJS, Django
Languages: Spanish, English, French, Catalan

Awards

PhD FPI Grant, Spanish Government, 2023
Research Initiation Grants, Universitat Politècnica de Catalunya, 2022
Becas Santader Scholarship, MIT Professional Education, 2020
CINDA Scholarship, PUCP, 2019

Certificates

AWS Certified Solutions Architect – Associate *October 2021*
TOEFL iBT Score: 93 *October 2020*
MIT Professional Education Cloud & Devops *September 2020*
MIT Professional Education Leading Digital Transformation *May 2020*

Miscellaneous

ACM Europe Summer School 2022 Volunteer
Winner of the Huawei Challenge in HackUPC 2022
Winner of Oncolab Hackathon 2022
Winner of the worldwide DigiEduHack by European Commission 2020
Winner of SoCaTel Hackathon 2019
Winner of the Facebook Challenge in HackUPC 2019