Jorge Mifsut Benet

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Education

Sorbonne Université (SU) — Paris, France
PhD, Deep-learning surrogate models for Modeling Spatio-Temporal Dynamics — *Nov. 2023 - Present*

Chalmers University of Technology (CTH) — Göteborg, Sweden
MSc, Complex Adaptive Systems — *Aug. 2021 - Jun. 2023*

Universitat de Valencia (UV) — Valencia, Spain
Bachelor's degree in Physics — *Sep. 2016 – Jul. 2021*

Université Paris Cité — Paris, France
Erasmus+ Exchange Programme — *Sep. 2018 – Jun. 2019*

Research Experience

PhD Thesis — Nov. 2023 - Present
Institut des Systèmes Intelligents et Robotique, SU

- This thesis explores the development of deep learning based surrogate models for dynamic phenomena. The main investigations will concern the combination of machine learning and physics priors and the modeling of uncertainty.

Master's Thesis — Dec. 2022 - Jul. 2023
Department of Earth, Space and Environement, CTH

- In this work we present a Convolutional Neural Network (CNN) architecture that can be utilized to regress two key physical features of massive protostars from images in the 19 μm and the 37 μm bands: the inclination angle with respect to the line of sight (θ_{view}) and the protostellar mass (m_*). This model is then tested on an image of *Cepheus A* from the SOFIA Massive Star Formation Survey and the estimations for θ_{view} and m_* agree within the error range with other estimations in the literature obtained by different methods.

Research Internship — Jul. - Aug. 2022
I2SysBio (Institute for Integrative Systems Biology, CSIC-UV)

- Worked as an external collaborator at the I2SysBio research group in the University of Valencia as a data analyst in the context of Bioinformatics. I implemented several statistical and ML methods for big data analysis and produced data visualizations as contribution to the research conducted on genome similarities between certain bacteria and bacteriophages. This study yielded a published paper where I appear as author: [1]

Publications

[1] Vicente Arnau, Wladimiro Díaz-Villanueva, **Jorge Mifsut Benet**, Paula Villasante, Beatriz Beamud, Paula Mompó, Rafael Sanjuan, Fernando González-Candelas, Pilar Domingo-Calap, and Mária Džunková. "Inference of the Life Cycle of Environmental Phages from Genomic Signature Distances to Their Hosts". In: *Viruses* 15.5 (2023). ISSN: 1999-4915. DOI: 10.3390/v15051196. URL: https://www.mdpi.com/1999-4915/15/5/1196.

Workshops and Volunteering

Programa Entreiguals Workshop and Mentorship — 2019-2021
University of Valencia

∗ Workshop on mentorship and communication skills, as well as on university services and administration to assist incoming international students along their stay at University of Valencia.

* I had under my responsibility two incoming students from different exchange programs as a volunteer in the mentor program offered by the University of Valencia to foreign students

Course representative 2022-2023

Chalmers University of Technology

* I participated as course representative in the courses Deep Machine Learning and Game Theory and Rationality, providing feedback and communication to the professors in behalf of the rest of my classmates, as well as assistance with technical problems throughout the course.

Technical Skills

Languages : Spanish (native), Valencian (native), English (TOEFL iBT 113/120, C1), French (B2), Swedish (SFI C)
Programming languages: Python, MATLAB, Wolfram Mathematica, C/C++
Packages: PyTorch, jax, Tensorflow, Keras, SciKit-Learn, Numpy, Pandas, Matplotlib, Seaborn
Other: Proficient in LaTeX, Microsoft Office, Adobe Creative Cloud software