

# **JORIS PARET**



### Ph.D in computational physics | Machine learning



#### WORK EXPERIENCE

LAB. CHARLES COULOMB (CNRS - MONTPELLIER UNIVERSITY)

SEP. 2018 - NOV. 2021

#### PH.D FELLOW

Study of the emergence of local order in disordered materials (supercooled liquids, glasses) using information theory and various machine learning methods such as clustering and dimensionality reduction. 200 hours of teaching in programming and physics.

DPT. OF PHYSICS (MONTRÉAL UNIVERSITY)

FEB. 2018 - AUG. 2018

JUN. 2016 - JUL. 2016

#### RESEARCH ASSISTANT

Study of the phonon replica in the electronic structure of a FeSe monolayer on top of a SrTiO<sub>3</sub> substrate using Density Function Theory and ab initio simulations. Summer school on parallel computing (MPI, OpenMP, CUDA).

LAB. CHARLES COULOMB (CNRS)

JUL. 2017 RESEARCH ASSISTANT

Experiments of Raman scattering and reflectometry of graphene on oxidised silicon with a thickness gradient. Developement of a LabVIEW application for the automation of experimental measures.

LAB. CHARLES COULOMB (CNRS) RESEARCH ASSISTANT

Mechanical exfoliation, transfer and stacking of 2D crystrals into heterostructures.

Raman spectroscopy and white-light reflectometry.

LAB. CHARLES COULOMB (CNRS)

#### RESEARCH ASSISTANT

JUN. 2015

Numerical models and simulations of opinion dynamics on small-world networks.



#### **EDUCATION**

LAB. CHARLES COULOMB (CNRS - MONTPELLIER UNIVERSITY)

2018 - 2021

#### PH.D IN PHYSICS

Condensed matter physics. Python, Fortran and C++ programming. Software development. Classical molecular dynamics on GPU and CPU. International workshop on « Machine Learning for Materials Science ». International summer school on « Glasses, Jamming and Slow Dynamics ». Various talks and poster presentations at international scientific events.

FACULTY OF SCIENCES (MONTPELLIER UNIVERSITY)

#### MASTER IN COMPUTATIONAL PHYSICS

High-performance computing (code optimization, parallel computing). Molecular dynamics (classical and ab initio) and Monte Carlo methods. Advanced physics. Programming in C++, MATLAB, Python, Fortran, Java, LabVIEW. SQL database and IT project management.

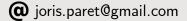
#### FACULTY OF SCIENCES (MONTPELLIER UNIVERSITY) **BACHELOR IN THEORETICAL PHYSICS**

2013 - 2016

2016 - 2018

Fundamentals in solid and fluid dynamics, optics, electromagnetism, thermodynamics, quantum physics, statistical physics, nuclear physics, experimental physics.

### CONTACT





in /joris-paret

/jorisparet

#### **ABOUT ME**

main interests revolve  $\ll M_V$ around physics, simulation and computer science. I like to find innovative solutions to complex combining problems Ьy my scientific knowledge with my technical skills in programming and machine learning. »

#### **MAIN SKILLS**

Research **Physics** Simulation Scientific computing Machine learning Deep learning





Fortran Unity

Git

Docker



French - native English - fluent Spanish - intermediate



#### **SOCIAL SKILLS**

Self-reliance Critical thinking Curiosity Communication Pedagogy





**HOBBIES** 

design

Hiking, biking

Drums, ukulele, banjo,

mandolin, saxophone,

computer music

Game development

3D modelling and logo

Canada, USA, Iceland,

England, Italy, Portugal,

Ireland, Scotland,

Finland, Germany

## JORIS PARET



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#### **PUBLICATIONS**



« Dimensionality reduction of local structure in glassy binary mixtures », currently under review in The Journal of Chemical Physics (2022)



« Hidden order in disordered materials », Ph.D thesis (2021)



« partycls: A Python package for structural clustering », The Journal of Open Source Software (2021)



« Assessing the structural heterogeneity of supercooled liquids through community inference », The Journal of Chemical Physics [Editor's Pick] (2020)



#### CERTIFICATIONS



**Building Deep Learning Models with TensorFlow** issued by IBM (2022)



**Deep Neural Networks with PyTorch** | issued by IBM (2022)



**Deep Learning & Neural Networks with Keras** issued by IBM (2022)



Machine Learning with Python | issued by IBM (2022)



**Docker for the Absolute Beginner** | issued by Udemy (2022)



Complete C# Unity Game Developer 3D | issued by Udemy (2021)



C++ Programming - From Beginner to Beyond | issued by Udemy (2021)



#### PROGRAMMING PROJECTS



hamoco - Real-time mouse control via webcam-recorded hand gestures (2022) - Available on PyPI (v1.0.1)



**Synth Road** – A mobile game with synthwave vibes made with Unity (2022)



- Available on the Google Play Store

- Money generated from the optional advertisement is donated to NGOs



partycls - Unsupervised learning of structure in systems of interacting particles (2021)

- Official homepage at **jorisparet.com/partycls**
- Available on PyPI (v2.0.0)
- Published in the Journal of Open Source Software