Clement Vignac

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https://cvignac.github.io/
Google Scholar link
Github Link

About me

I am a PhD student at EPFL working under the supervision of Pascal Frossard. I am also a PhD student within the ELLIS network, co-supervised by Max Welling. My research focuses on graph neural networks and generative models point clouds and graphs. I develop generative models that respect some predefined symmetries and study the theoretical challenges raised by drug discovery applications.

Education

2018 - June 2023   PhD in Electrical Engineering in LTS4, EPFL
                    Lausanne, Switzerland

2017 - 2018   Master of Science: Mathematics, Vision, Learning
                    MVA, ENS Paris-Saclay, Cachan, France

2014 - 2017   Engineering Degree (equivalent to M.Sc.) in Applied Mathematics
                    École Polytechnique, Paris, France

2012 - 2014   Preparatory Classes (intensive program to enter top ranking universities)
                    Lycée Henri IV and *Lycée Louis Le Grand, Paris, France*

Other research experience

Sept - Dec 2021   ELLIS visit at AMLab under the supervision of Max Welling.
                    Denoising diffusion models for molecule generation in 3d.
                    University of Amsterdam, Netherlands

April - Sept 2021   Master thesis on graph neural networks with Pascal Frossard
                    EPFL, Lausanne, Switzerland

April - Aug 2017   Master thesis on structured prediction for search engines with Alessandro Rudi and Lorenzo Rosasco
                    University of Genoa, Italy

Selected Publications

Equivariant Diffusion for Molecule Generation in 3d
Emiel Hoogeboom*, Victor Garcia Sattoras*, C.V.*, Max Welling, *Spotlight at ICML 2022*

Top-N: Equivariant set and graph generation without exchangeability
C.V., Pascal Frossard, *ICLR 2022*

Building powerful and equivariant graph neural networks with structural message-passing
C.V., Andreas Loukas, Pascal Frossard, *NeurIPS 2020*

Other Publications

Modurec: Recommender Systems with Feature and Time Modulation
Javier Maroto, C.V., Pascal Frossard, *ICASSP 2021*

On the choice of Graph neural network architectures
C.V., Guillermo Ortiz-Jiménez, *ICASSP 2020*

Learning anisotropic filters on product graphs
C.V., Pascal Frossard, *ICLR Workshop on Representation learning on graphs and manifolds (2019)*

Teaching

Network Machine learning (EPFL, Spring - Summer 2022)
Digital Signal Processing (EPFL, Fall - Winter 2020)
A network tour of Data science (EPFL, Fall - Winter 2019)

During my PhD, I supervised 6 master theses as well as 5 part-time master projects.

Other work experience

June - Aug 2016   Internship as a developer in a startup that designs solutions for spare part recognition.
        - Developed a platform and a API to 3d print spare parts.
        - Handled the cloud infrastructure (Azure) and copyright issues in collaboration with layers.
        Pzartech, Tel-Aviv, Israel

2015 - 2016   Group project at École Polytechnique. We prototyped a trolley to make railway maintenance more efficient. I integrated sensors to a Python platform and 3d printed parts of the trolley in a fab-lab.
        SETEC Ferroviaire, Paris, France

Oct 14 - Apr 15   Civic service as an education teacher in a school for teenagers with behavioural disorders. I developed projects such as the recording of an album in a studio and helped the teenagers in their everyday life.
        Apprentis d'Auteuil, Toulouse, France

Talks

Sony AI *(*December 2022)
Swiss data science center workshop (November 2022)
LearnGraph22 (November 2022)
LoGaG seminar (October 2022)
Swiss equivariant learning workshop (July 2022)
Geneva university seminar (June 2022)
LoGaG seminar (April 2022)
GraphML and beyond seminar (April 2022)
CNRS Groupement de recherche ISIS, France (March 2022)
Swiss Data Science Center (January 2019)

Scholarships

ELLIS Society PhD program, 2021
Swiss Data Science Center PhD fellowship, 2019

Technical skills
Most experienced: Python, PyTorch, PyTorch geometric
Working knowledge: Javascript, Matlab

Languages
French: Native speaker
English: Fluent (TOEFL: 109 in 2017)

German: Intermediate (CEFR: B2 level)
Italian: Conversational (CEFR: B1 level)