

KEVIN KÜHL

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EDUCATION

PhD Candidate <i>Mathematics</i> University of New South Wales - Sydney Machine Learning and Operator-Theoretic Methods for Nonlinear Dynamical Systems	May 2024 – Present Australia
Master's Degree <i>Applied Mathematics</i> Institut Polytechnique de Paris Thesis: Optimal Capital Allocation for Volatility Strategies	Sep 2020 – Dec 2022 France
Engineering Degree Télécom Paris - Institut Polytechnique de Paris	Sep 2020 – Dec 2022 France
Bachelor's Degree <i>Computer Engineering</i> University of São Paulo Thesis: Iterated Function Systems and an Application to Fractal Image Compression	Jan 2017 – Dec 2023 Brazil
Technical Degree <i>Electric and Electronic Technologies</i> Federal Institute of Espírito Santo	Jan 2011 – Dec 2014 Brazil

RESEARCH EXPERIENCE

Undergraduate Research Fellow University of São Paulo - Institute of Mathematical and Computer Sciences Supervisor: Tiago Pereira - USP ICMC	Aug 2018 – Dec 2023 Brazil
<ul style="list-style-type: none">Worked on complex network dynamics reconstruction from data through sparse recovery techniques.Studied the behavior of the Lyapunov exponent as a predictor of critical changes in dynamical regime.During COVID-19, collaborated on the research and development of a computational model for disease spread, accounting for the general social dynamics of any community (CORMOBUSS).	
Research Intern Imperial College London - Department of Mathematics Supervisor: Jeroen Lamb - ICL	Jan 2019 – Feb 2019 United Kingdom
<ul style="list-style-type: none">In collaboration with Professor Karl Friston's neuroscience team at UCL, researched state transitions in time series and reconstruction techniques for the dynamics of complex networks.	

WORK EXPERIENCE

Machine Learning Engineer Johnson & Johnson / Johnson & Johnson Innovative Medicine	Jul 2021 – Dec 2023
<ul style="list-style-type: none">Developed a link prediction model to streamline drug discovery by leveraging knowledge graphs, significantly improving the efficiency of identifying potential targets.Led R&D efforts to develop a deep learning framework for lipid nanoparticle analysis, leveraging cryo-electron microscopy (cryo-EM) images to enhance precision in characterization and drug efficacy analysis.Developed generative AI frameworks, including Retrieval-Augmented Generation (RAG) and multi-agent systems, for drug discovery, pre-clinical, and clinical analysis, enhancing biomedical data interpretation and decision-making capabilities across healthcare research and development.Contributed to the research and development of large language models for genomics, focusing on enhancing single-cell annotation through model design.	

- Led R&D of graph-based machine learning models for node classification and link prediction in supply chain data, improving failure mode analysis through graph neural networks

Intern

Melanion Capital (France), XP Investments (Brazil), B2W Digital (Brazil), Veggly (Brazil)

TEACHING EXPERIENCE

MATH1131 - Mathematics 1A

University of New South Wales

Term 1 2025

Sydney, AU

AWARDS AND ACHIEVEMENTS

ANZIAM 2025 Student Support Scheme Funding

2025

UNSW University International Postgraduate Award

2024

São Paulo Research Foundation Scholarship

2023

Institute Mines-Télécom Scholarship

2020

Coordination for the Improvement of Higher Education Personnel Scholarship

2021

São Paulo Research Foundation Scholarship

2019

National Council for Scientific and Technological Development Scholarship

2018

Silver Medal in the Latin American University Physics Olympiad

2018

Gold Medal in the Brazilian Physics Olympiad for Public Schools

2014

PAPERS AND PRESENTATIONS

Learning dynamically inspired invariant subspaces for Koopman and transfer operator approximation

April 2025 - Pre-print

Learning transfer operator dynamics on latent spaces

February 2025

ANZIAM 2025

RELEVANT PROJECTS

Optimized intervention against Covid-19 in a complex network

2020

University of São Paulo/Center for Research in Mathematical Sciences Applied to Industry

Assessing environmental constraints on energy prices via stochastic optimization

2023

Center for Research in Math. Sci. Applied to Industry/Chamber of Electric Energy Commercialization

Optimal capital allocation for volatility strategies

2022

Télécom Paris/ENSAE Paris/Melanion Capital

Detection of changes in parameters of diffusion processes for optimal execution strategies

2021

Varenne Capital Partners

Analysis of economic incentives of fake reviews for Parisian restaurants on Yelp

2021

Télécom Paris

How user information drives Amazon's products recommendations

2021

Télécom Paris

Computer vision in automated laser classing systems

2017

University of São Paulo/São Carlos Institute of Physics - Group of Optics

SKILLS

Languages: Portuguese (Native), English (Fluent), French (Fluent), Spanish (Fluent)

Programming: Python, C, C++, C#, MATLAB, SQL