IOANNIS PETROMICHELAKIS

i.petromichelakis@columbia.edu | (646)-512-1260 | 419 W 118th Str, New York, NY 10027

Final year engineering Ph.D. candidate focusing on applied mathematics and specializing in computational stochastic dynamics.

TECHNICAL SKILLS

• Optimization • Monte-Carlo methods • Stochastic process modeling • Statistical inference • Time-series analysis
• **Machine Learning**: Bayesian models, regularization and feature selection, compressed sensing, sentiment analysis, NLP
• **Programming**: Python (Pandas, Scikit-learn, StatsModels, Scipy, wxPython), SQL, Matlab, R, Fortran

EXPERIENCE

Bank of America — New York, NY
Global Markets, Spring Off-Cycle Associate — Feb. 2020-Apr 2020
• Quantitative Research: Developing machine learning solutions in R to assist client investment decisions

Goldman Sachs — New York, NY
Securities Division, Summer Associate — May 2019-Aug 2019
• Algorithmic Trading (Equities): Improved the execution strategy selection process by building a nonlinear regression model in Python (Scikit-learn, Pandas, SQL) for predicting market-impact using order flow data.

Columbia University — New York, NY
Stochastic Engineering Dynamics Lab, Research Assistant — Sep 2016-present
• Developed the Wiener path integral (WPI), a theoretical physics' computational technique for solving nonlinear Stochastic Differential Equations (SDEs) in engineering problems (Matlab, Python) [6 papers]
• Applied compressed sensing techniques (LASSO, elastic-net, group-LASSO, dictionary learning - K-SVD) for recovering signals with missing data and for low-rank+sparse matrix decomposition (Matlab) [3 papers]
• Implemented computational algebraic methodologies for invariant manifolds (Symbolic Matlab) [1 paper]
• **Coursework**: Bayesian Models for Machine Learning, Convex Optimization, Sparse Representations in High Dimensional Geometries, Digital Signal Processing, Random Signals and Noise, Stochastic Processes in Mechanics, Applied Functional Analysis, Stochastic Control and Financial Applications (audited)

Foundation for Research and Technology - Hellas (FORTH) — Heraklion, Greece
Institute of Applied and Computational Mathematics, Research Associate — Jan 2014-Dec 2014
• Developed mathematical imaging techniques for scatterer localization using recorded signals [4 papers]

Domos Structural — Heraklion, Greece
Civil Engineering Consultant and Project Manager — Oct 2013-Aug 2016
• Managed large-scale construction projects and provided consultation in reliability-based solutions

EDUCATION

Columbia University — New York, NY
Ph.D. in Engineering Mechanics. GPA: 4.1/4.0 — Expected May 2020

Technische Universität Dresden — Dresden, Germany
M.Sc. in Computational Mechanics. GPA: 3.9/4.0 — Oct 2013

National Technical University of Athens — Athens, Greece
Diploma in Civil Engineering. GPA: 3.5/4.0 — Jul 2011

HONORS AND AWARDS

• 2 Best Paper Awards (Dynamics/Probability) in the Engineering Mechanics Institute conferences — MIT 2018/Caltech 2019
• Received Ph.D. sponsorship and 2 external fellowships for academic excellence (total ≈ $180k) — 2016-2020
• Best Teaching Assistant Award (partly based on students' evaluations) for excellence in teaching — Columbia 2018
• Best M.Sc. Thesis Award (Günther Grüning Preis) by the German Association of Test Engineers — TU Dresden 2013
• 4 Awards in National Mathematical Competitions by the Hellenic Mathematical Society — 2001-2005

Side Projects: • Data Science: Developed a recommendation system for Airbnb listings using Natural Language Processing (NLP) techniques on Yelp and Airbnb data with Python • Structural Analysis and Shape Optimization: Developed two extensive desktop applications including GUI (wxPython) • Contributed to the preservation of historical monuments [3 papers]

For a complete list of publications, manuscripts, project descriptions and source code files please visit: https://yannispetro.github.io