Giulia Pucci

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PROFILE

As a PhD student in Applied Mathematics, my focus lies in the area of **Stochastic Control Theory**. My current research explores the topics of optimal investment and de-pollution strategies for transboundary pollution, of impulse control for capacity expansion in the energy sector to meet future demands and emission targets, and of optimal switching and impulse control for non-markovian systems, specifically for mean-field dynamics, by using either variational inequalities or Snell envelope theory.

EDUCATION

KTH - Royal Institute of Technology **09 2022 – current**
PhD Student - Department of Mathematics - Division of Mathematical Statistics. *Stockholm, Sweden*

- Supervisor: Associate Professor Nacira Agram
- Teaching Assistant for courses in *Financial Mathematics* and *Linear Regression Analysis*.

Sapienza University of Rome **09 2020 – 07 2022**
*Master of Science - Final Grade : **110/110 with honors*** *Rome, Italy*

- Thesis in Control Theory: "Optimal strategies for a debt management problem." Supervisor: Prof. Graziano Crasta

Sapienza University of Rome **09 2017 – 07 2020**
*Bachelor of Science - Final Grade : **110/110 with honors*** *Rome, Italy*

- Thesis: "Calculus of Variations: an application to the protein structure." Supervisor: Prof. Annalisa Malusa
- **Erasmus exchange program** at Stockholm University during the first semester of the academic year 2019-2020

PUBLICATIONS

* Agram N., Pucci G., & Øksendal B. (2024) **Impulse Control of Conditional McKean-Vlasov Jump Diffusions** Journal of Optimization Theory and Applications, 1 – 31

PREPRINTS

* Gozzi, F., Leoocata, M., & Pucci, G., **Network-Based Optimal Control of Pollution Growth** arXiv preprint

RESEARCH VISITS

University of Oslo **06 2023**
One-week research visit to collaborate with Prof. Bernt Øksendal and Prof. Fred Benth *Oslo, Norway*
Luiss Guido Carli **08 2023 - 12 2023**
One-semester project collaborating with Prof. Fausto Gozzi and Marta Leocata. *Rome, Italy*

CONFERENCES, SEMINARS etc.

* **Conference** in memory of Tomas Björk - Swedish House of Finance, Stockholm, Sweden 22/10/10-11.
* Linnaeus-Maghreb **Workshop** in Stochastic Analysis - Linnaeus University, Växjö, Sweden 22/11/16.
* European **Summer School** in Financial Mathematics "Mathematics of FinTech" - TU Delft, Netherlands 23/09/04-08
* **Workshop** on Stochastic Control Theory, KTH, Stockholm 23/10/25-26
* **Workshop** "Mean Field Games in Economics 2023" - Luiss University, Rome Italy 23/11/09-10
* LUWSNA Linnaeus University **Workshop** on S(P)DEs, their numerics and applications in Växjö, Sweden 23/12/06-08
* Algerian **Conference** on Stochastic Analysis with Applications to Finance, Energy and Insurance - 24/03/06
* Some Mathematical Approaches to Climate Change and its Impacts **Conference**, Pisa, Italy 24/04/22-23
* Machine Learning and Optimal Control **Summer School**, Gaeta, Italy,24/05/27-31
* Insurance Data Science **Conference**, Stockholm University, 24/06/17-18

RELEVANT COURSEWORK

- Control Theory
- Stochastic Processes
- ML and Neural Networks
- Mathematical Finance
- Stochastic Calculus
- Numerical Modeling
- Pollution Control

PROGRAMMING SKILLS

- Python
- C
- Matlab
- Julia
- Wolfram Mathematica
- R