FANGYUAN ZHANG

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ACADEMIC POSITION

Senior Research Engineer — June 2023-
EDHEC-Risk Climate Impact Institute, EDHEC Business School

Postdoctoral Researcher — April 2022- May 2023
Data Science Department, EURECOM

EDUCATION

PhD in Economics (Dr.rer.pol; Magna Cum Laude) — November 2022
Department of Mathematics and Economics, University of Ulm, Germany

M.Sc in Finance and Insurance — September 2017
Department of Mathematics and Economics, University of Ulm, Germany

M.Sc in Finance and Insurance — June 2017
School of Economics, Fudan University, China

B.A in Economics — June 2015
School of Economics, Fudan University, China

JOURNAL PUBLICATIONS AND WORKING PAPERS

The author ordering is alphabetical for all publications, following the convention in economics and mathematics. The corresponding author is indicated by ∗.

1 Non-concave portfolio optimization with average Value-at-Risk

Fangyuan Zhang*

Mathematics and Financial Economics 2023. (Journal page)

2 Intergenerational risk sharing in a defined contribution pension system: analysis with Bayesian optimization

An Chen, Motonobu Kanagawa and Fangyuan Zhang*

ASTIN Bulletin: The Journal of the International Actuarial Association. (Journal page)

3 On the equivalence between Value-at-Risk- and Expected Shortfall-based risk measures in non-concave optimization

An Chen, Mitja Stadje and Fangyuan Zhang* (Journal page)

AWARDS

Chris Dyakin Prize from the International Actuarial Association for the paper "Intergenerational risk sharing in a defined contribution pension system: analysis with Bayesian optimization" together with An Chen (Ulm University) and Motonobu Kanagawa (Eurecom).

RESEARCH INTERESTS

Fangyuan Zhang has been working on the interface of mathematics and financial economics. In particular, she uses stochastic analysis and machine learning tools to provide analytical and computational solutions for optimization problems in finance and economics. During PhD, she studied financial regulations using risk measures (e.g., Value-at-Risk), and analyzed whether and how they are effective in regulating the investing behaviours of financial institutions by formulating the problem as constrained non-concave optimization.

She also studied optimal designs for collective defined-contribution pension systems, motivated by pension reform ongoing in many countries. She analyzed novel pension models similar to Dutch and Swedish pension systems. In particular, she applies Bayesian optimization to obtain optimal asset-liability management strategies for the collective pension model, which is the first try at using machine learning tools to design the collective pension models.

CONTRIBUTED TALKS

JoCo 2024: The first joint colloquium of all IAA sections	September 2024,Belgium
Conference on Economic Theory	August 2023, China
EDHEC/EURECOM joint research workshop	May 2023, France
Risk and Statistics, the 3rd Tohoku ISM-UULM joint workshop	October 2022, Germany
25th International Congress on Insurance: Mathematics and Economics	July 2022, online
The IVW-ifa Research workshop and Ulm Actuarial Day	March 2022, Germany
The IVW-ifa-Kaiserslautern Research workshop and Ulm Actuarial Day	October 2021, Germany
24th International Congress on Insurance: Mathematics and Economics	July 2021, online

TEACHING EXPERIENCE

Tutor at EDHEC-Risk Climate Impact Institute
Science and Engineering of Climate Change
Economics and Policies of Climate Change   2023
Tutor for Master Seminar at University of Ulm
Special Aspects of Insurance Economics/Insurance Mathematics   2019-2022
Supervising bachelor/master students in studying and replicating research papers on classic and state-of-the-art academic articles in actuarial science.

Tutor for Risk Theory at University of Ulm   2021-2022
Main subjects: Non-life insurance mathematics; probability theory; stochastic processes; Markov chains; Monte Carlo simulation.

PERSONAL INFORMATION

Nationality: Chinese

Gender: Female

Languages: Chinese (native); English (fluent)

Programming languages: R; Python;