Efstratios Tsoukanis

efstratios.tsoukanis@cgu.edu — +1 (240) 623-7742

CGU Institute of Mathematical Sciences
150 E. 10th Street Claremont, CA 91711

Education

CGU Institute of Mathematical Sciences — **Claremont**
Research Assistant Professor, supervised by *Professor Hrushikesh Mhaskar.* — *2024-2025*

University of Maryland — **College Park**
PhD in Mathematics, supervised by *Professor Radu Victor Balan.* — *2018-2024*

University of Crete — **Heraklion**
Master in Mathematics, supervised by *Professor Themistoklis Mitsis.* — *2016-2018*

- Thesis title: Fourier multiplier and Fefferman counter-example

University of Crete — **Heraklion**
BSc in Mathematics — *2012-2016*

University of Barcelona — **Erasmus**
2014

Research and Publications

My research lies in *Applied Harmonic Analysis* in *Geometric machine learning* and on approximation theory.

1. Balan R., Tsoukanis E. (2023). Relationships between the Phase Retrieval Problem and Permutation Invariant Embeddings *Sampta Conference 2023* (arXiv:2306.13111)
2. Balan R., Tsoukanis E. (2023). G-Invariant Representations using Coorbits: Bi-Lipschitz Properties (arXiv:2308.11784)
3. Balan R., Tsoukanis E. (2023). G-Invariant Representations using Coorbits: Injectivity properties (arXiv:2310.16365)
4. Balan R., Tsoukanis E., Wellershoff M. (2024).Stability of sorting based embeddings (arXiv:2410.05446)

Work experience

Teaching assistant at University of Maryland — **2018-2023**

- Teaching assistant in Calculus II,III, Linear Algebra and Differential Equations

Teaching assistant at University of Crete — **2015-2016**

- Teaching assistant in Calculus I and Analysis I

Other activities

- Research Interaction Team in Applied Harmonic Analysis: Fall 2021, Fall 2023.
- Research Interaction Team in Deep Learning: Fall 2022, Spring 2023, Fall 2023.
- Refereed at *Foundations of Computational Mathematics.*
- Refereed at *Applied and Computational Harmonic Analysis.*

Skills

programming skills

- Python • Matlab • Latex.

Languages

- English • Greek.

Graduate Coursework

- Measure Theory • Partial Differential Equations I, II • Algebra I,II • Riemann Geometry
- Functional Analysis • Complex Analysis • Probability I,II • Real Analysis II
- Harmonic Analysis • Dynamical System I • Geometric Methods in Analysis
- Numerical Methods for Data Science and Machine Learning • Methods for Random and Low-Rank Matrices
- Random Processes in Communication and Control

Selected talks

- Noise stability of functions with low influences. *Computational Learning Theory and Fourier Analysis summer school 2022.*
- Stability properties of Co-orbit emdeddings. *CodEx seminar 2023.*
- Relationships between the Phase Retrieval Problem and Permutation Invariant Embeddings. *Sampta conference 2023.*