SYMEON PAPADIMITROPOULOS

University of California, Merced, USA
Applied Mathematics
Date of Birth: 9 June 1987
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Last Update: September 16, 2024

PROFESSIONAL APPOINTMENTS

- Postdoctoral Scholar, Applied Mathematics Department, University of California, Merced, USA. August 2022 - present

- Postdoctoral fellow, School of Mathematical Sciences Tel-Aviv University, Israel, October 2020 - August 2022

- Postdoctoral fellow, Faculty of Aerospace Engineering, Technion, Israel. October 2018 - October 2020

EDUCATION

- **Ph.D.** in Applied Mathematics, University of Crete, Greece. Awarded: July 2018.
  Thesis topic: *Imaging in waveguides*
  Advisors: Prof. Chrysoula Tsogka and Prof. Dimitrios Mitsoudis

- **M.Sc.** in Mathematical Modeling and Computational Techniques, University of Crete, Greece.
  Awarded: July 2015.

- **B.Sc.** in Computational Mathematics and Software Development, University of Crete, Greece.
  Awarded: November 2012.

RESEARCH INTERESTS

- Wave propagation and applications to imaging

- Underwater acoustics

- Inverse problems

- Absorbing boundary conditions

- Numerical methods for PDEs

- Machine Learning applied to inverse problems

AWARDS & HONORS

- Departmental service award, University of California, Merced, AY 2023 - 2024

- Best talk award, ISCM-46, Tel Aviv, Israel, 4 April 2019

- Stavros Niarchos Foundation scholarship, 2017 – 2018.

PUBLICATIONS

JOURNAL PUBLICATIONS

- **S. Papadimitropoulos**, C. Tsogka, M. Hasan, *Synthetic aperture imaging using physically informed convolutional neural networks*, IEEE Transactions on Computational Imaging, *submitted*.

- A. Kahana, **S. Papadimitropoulos**, E. Turkel, D. Batenkov, A physically informed deep-learning approach for locating sources in a waveguide, The Journal of the Acoustical Society of America (2023).

- **S. Papadimitropoulos**, D. Givoli, The Double Absorbing Boundary method for the Helmholtz equation, Applied Numerical Mathematics (2021).

- **S. Papadimitropoulos**, D. Rabinovich, D. Givoli, The Double Absorbing Boundary method incorporated in a high-order spectral element formulation, Journal of Theoretical and Computational Acoustics, page 2050007, 2020.

- **S. Papadimitropoulos**, C. Tsogka, D.A. Mitsoudis, Imaging in three-dimensional waveguides with partial aperture data, Journal of Theoretical and Computational Acoustics, p.2050018, 2020

- C. Tsogka, D. A. Mitsoudis, **S. Papadimitropoulos**, *Imaging extended reflectors in a terminating waveguide*, SIAM Journal on Imaging Science, 11(2), 1680–1716, 2018.

- C. Tsogka, D. A. Mitsoudis and **S. Papadimitropoulos**, *Partial-aperture array imaging in acoustic waveguides*, Inverse Problems, Vol. 32, p. 125011 (31pp), 2016.

- C. Tsogka, D. A. Mitsoudis and **S. Papadimitropoulos**, *Selective imaging of extended reflectors in two-dimensional waveguides*, SIAM Journal on Imaging Science, Vol. 6, 2714–2739, 2013

CONFERENCE PUBLICATIONS

- **S. Papadimitropoulos**, C. Tsogka, M. Hasan, *Synthetic aperture imaging using physically informed convolutional neural networks*, The 11th International Conference on Inverse Problems: Modeling and Simulation, Malta, May 26 - June 01, 2024

- **S. Papadimitropoulos**, C. Tsogka, M. Hasan, *Synthetic aperture imaging using physically informed convolutional neural networks*, IEEE Conference on Computational Imaging Using Synthetic Apertures , Boulder, Colorado, USA, May 20-23, 2024

- **S. Papadimitropoulos**, C. Tsogka, D. A. Mitsoudis, *Imaging in three-dimensional terminating waveguides with partial-aperture data*, Proceedings of the 14th International Conference on Mathematical and Numerical Aspects of Wave Propagation, Vienna, Austria, August 25-30, 2019.

- C. Tsogka, D.A. Mitsoudis, **S. Papadimitropoulos**, *Imaging extended reflectors in a terminating waveguide*, Proceedings of the 6th European Conference on Computational Mechanics, Glasgow, United Kingdom, June 11 - 15, 2018.

- C. Tsogka, D. A. Mitsoudis, **S. Papadimitropoulos**, *Imaging extended reflectors in two-dimensional waveguides*, Proceedings of the 5th European Conference on Computational Mechanics, Barcelona, Spain, June 20 - 25, 2014.

- C. Tsogka, D. A. Mitsoudis, **S. Papadimitropoulos**, *Imaging extended reflectors in a two-dimensional waveguide*, 11th International Conference on Mathematical and Numerical Aspects of Waves, June 2013, Gammarth, Tunisia

ACADEMIC ACTIVITIES

TEACHING

- As Instructor:
  - MATH131: Numerical methods for scientists and engineers, Fall 2024
  - MATH023: Vector Calculus, Summer 2023
  - MATH131: Numerical methods for scientists and engineers, Spring 2023

- As Teaching Assistant in University of California, Merced:
  - MATH131: Numerical methods for scientists and engineers, Fall 2023
  - MATH131: Numerical methods for scientists and engineers, Fall 2022

- As Teaching Assistant in University of Crete:
  - Programming II (Python), Spring 2017
  - Numerical Linear Algebra, Fall 2016
  - Numerical Solution of PDEs, Fall 2015
  - Introduction to Programming, Spring 2012 (C), Fall 2013 (Python)
  - Numerical Solution of ODEs, Spring 2011, 2013, 2014, 2015
  - Numerical Analysis, Fall 2010, 2011, 2012
  - MATLAB for Calculus II, Spring 2010

STUDENT MENTORING

- Undergraduate Research:
  - AY 2024 - 2025: Harshini Nujella, co-mentored with Prof. Chrysoula Tsogka (ongoing)
  - AY 2023 - 2024: Mohamed Hasan, co-mentored with Prof. Chrysoula Tsogka (conculded, 2 Conference papers published, 1 Journal paper submitted. Currently an intern at Turion Space.)

ACADEMIC SERVICE

- Committee Work:
  - Applied Mathematics Retreat Committee, University of California, Merced, Summer 2024
  - Applied Mathematics Retreat Committee, University of California, Merced, Summer 2023

- Seminar Organization:
  - Applied Mathematics Seminar Series, University of California, Merced, AY 2023 - 2024
  - Imaging and Sensing Seminar, University of California, Merced, Fall 2022 - Present

- Reviewer:
  - Journal of Computational Physics
  - Journal of Theoretical and Computational Acoustics

LONG TERM VISITS

- Semester Program on "Mathematical and Computational Challenges in Radar and Seismic Reconstruction", Fall 2017, ICERM/Brown University, U.S.A.