

# SYMEON PAPADIMITROPOULOS

University of California, Merced, USA  
Applied Mathematics  
Date of Birth: 9 June 1987  
Citizenship: Greek

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## PROFESSIONAL APPOINTMENTS

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- Assistant Project Scientist, Applied Mathematics Department, University of California, Merced, USA. October 2024 - Present
- Postdoctoral Scholar, Applied Mathematics Department, University of California, Merced, USA. August 2022 - September 2024
- 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

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- **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

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- 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

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- 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

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### 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

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### 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 (concluded, 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.