

# Panagiotis Koutsogiannakis



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## EDUCATION

### University of Trento, Trento, Italy

- Doctoral Student at the Faculty of Civil, Environmental and Mechanical Engineering Nov 2019 – Dec 2022
  - Research subject:  
Novel micro-structured meta-materials with advanced friction properties
  - Supervisors: Prof. Davide Bigoni, Prof. Francesco Dal Corso
  - Focus: Meta-Materials, Structural Mechanics, Seismic Engineering, Mathematical Modeling.
- Marie-Curie Research Fellow

### National Technical University of Athens, Athens, Greece

- M.Sc. in Naval Architecture and Marine Engineering Dec 2013 – Feb 2019
  - Final grade: 8.34 / 10
  - Diploma thesis subject:  
Acceleration of BEM using CUDA/GPU programming with application to marine renewable energy extraction  
Supervisor: K. A. Belibassakis, Professor, Lab. of Ship and Marine Hydrodynamics, School of Naval Architecture and Marine Engineering, NTUA.

## RESEARCH EXPERIENCE

### University of Colorado Boulder, USA

- Postdoctoral Associate, WaveLab Sep 2024 – Now
  - Supervisor: Prof. Massimo Ruzzene
  - Focus: Wave propagation on solid media, numerical modeling, experimental investigation

### University of Trento, Italy

- Research Fellow, Faculty of Civil, Environmental and Mechanical Engineerings Jan 2023 – Aug 2024
  - Supervisor: Prof. Francesco Dal Corso
  - Focus: Structural mechanics, Mechanics of solids, Mathematical modeling.
- Research Fellow, Faculty of Civil, Environmental and Mechanical Engineerings Nov 2019 – Dec 2022
  - Project: INSPIRE, Innovative Ground Interface Concepts for Structure Protection
  - Supervisors: Prof. Davide Bigoni and Prof. Francesco Dal Corso
  - Focus: Meta-materials, Structural mechanics, Seismic engineering, Mathematical modeling.

## PUBLICATIONS

### JOURNALS

- [7] G. Migliaccio, P. Koutsogiannakis, F. D'Annibale, and F. Dal Corso, "Stabilization against gravity and self-tuning of an elastic variable-length rod through an oscillating sliding sleeve," *Under preparation*.
- [6] P. Koutsogiannakis, D. Misseroni, and F. Dal Corso, "Multiple modal self-tuning stabilization by means of sliding sleeve vibration - A semi-analytical solution for a rod constrained by an oscillating sliding sleeve," *Under preparation*.
- [5] P. Koutsogiannakis, T. Papathanasiou, and F. Dal Corso, "An Arbitrary Lagrangian-Eulerian Finite Element method for the configurational dynamics of variable support structures," *Under revision*.
- [4] P. Koutsogiannakis, D. Misseroni, D. Bigoni, and F. Dal Corso, "Stabilization against gravity and self-tuning of an elastic variable-length rod through an oscillating sliding sleeve," *Journal of the Mechanics and Physics of Solids*, Oct 2023, [doi:10.1016/j.jmps.2023.105452](https://doi.org/10.1016/j.jmps.2023.105452).
- [3] P. Koutsogiannakis, D. Bigoni, and F. Dal Corso, "Double restabilization and design of force-displacement response of the extensible elastica with movable constraints," *European Journal of Mechanics - A/Solids*, Jul 2022, [doi:10.1016/j.euromechsol.2022.104745](https://doi.org/10.1016/j.euromechsol.2022.104745).

- [2] P. Koutsogiannakis, E.S. Filippas, and K.A. Belibassakis, “A Study of Multi-Component Oscillating-Foil Hydrokinetic Turbines with a GPU-Accelerated Boundary Element Method,” *Journal of Marine Science and Engineering*, Nov 2019, doi:10.3390/jmse7120424.
- [1] G.A. Athanassoulis, C.P. Mavroeidis, P. Koutsogiannakis and Ch.E. Papoutsellis, “A numerical study of the run-up and the force exerted on a vertical wall by a solitary wave propagating over two tandem trenches,” *Journal of Ocean Engineering and Marine Energy*, Nov 2019, doi:10.1007/s40722-019-00148-5.

#### CONFERENCES

- [7] P. Koutsogiannakis, F. Dal Corso, and D. Bigoni, “Dynamics and instability of flexible structures with sliding constraints,” in *INSPIRE Final Conference*, Athens, Greece, May 2023.
- [6] P. Koutsogiannakis, F. Dal Corso, and D. Bigoni, “Bifurcation of the extensible elastica constrained by a curved profile,” in *Proceedings of the 13th HSTAM International Congress on Mechanics*, Patras, Greece, Aug 2022.
- [5] P. Koutsogiannakis, F. Dal Corso, and D. Bigoni, “Bifurcation analysis of a soft rod constrained by a curved profile,” in *Proceedings of the 11th European Solid Mechanics Conference*, Galway, Ireland, Jul 2022.
- [4] P. Koutsogiannakis, F. Dal Corso, and D. Bigoni, “A novel bifurcating force-limiting elastic structure,” in *Proceedings of the 25th International Congress of Theoretical and Applied Mechanics*, Milan, Italy, Aug 2021.
- [3] F. Dal Corso, P. Koutsogiannakis, D. Misseroni, T. Papathanasiou, and D. Bigoni, “Oscillating configurational constraints and nonlinear dynamics of extremely deformable structures,” in *Proceedings of the 25th International Congress of Theoretical and Applied Mechanics*, Milan, Italy, Aug 2021.
- [2] F. Dal Corso, P. Koutsogiannakis, D. Misseroni, T. Papathanasiou, and D. Bigoni, “Elastica and oscillatory configurational forces,” in *APM2021 - XLIX International Conference “Advanced Problems in Mechanics”*, Saint Petersburg, Russia, Jun 2021.
- [1] P. Koutsogiannakis, E.S. Filippas, and K.A. Belibassakis, “A GPU-accelerated method for the hydrodynamic analysis of a biomimetic flapping-foil device for marine energy extraction,” in *Proceedings of the 13th European Wave and Tidal Energy Conference*, Napoli, Italy, Sep 2019.

#### INVITED TALKS

- [1] P. Koutsogiannakis, D. Misseroni, D. Bigoni, and F. Dal Corso, “Dynamics of elastic rod constrained by an oscillating sliding sleeve,” in *School of Applied Mathematics and Physical Sciences, National Technical University of Athens, Athens, Greece, May 2023.*

#### PEER REVIEW

- Mechanics research communications Jan 2023-
- Best Video in the Gallery of Nonlinear Dynamics at the IUTAM Symposium on Nonlinear dynamics for design of mechanical systems across different length/time scales, July 31 - August 4, 2023, Tsukuba, Japan. Aug 2023
- Marie Skłodowska-Curie Actions, Research Fellowship, University of Trento 2019 – 2022

#### AWARDS & SCHOLARSHIPS

#### CAMPUS ACTIVITIES

##### Oceanos NTUA, National Technical University of Athens

- Responsible for the propulsion system design Sep 2018 – Oct 2019
  - Design of electric boat propulsion system
  - Optimization of the propulsion system
  - Production of propeller with additive manufacturing techniques
  - Participation in Monaco Solar & Energy Boat Challenge 2019

#### OTHER WORK EXPERIENCE

##### DNV-GL, Piraeus, Greece

- Intern, Department of Research and Development, Research & Development Division Jun 2018 – Aug 2018
  - Prediction of fuel consumption of ships using machine learning techniques.
  - Interfacing of simulation packages using the FMI standard.

#### LANGUAGES

- Greek: Native language.
- English: Proficient (TOEFL 110/120).
- French: Intermediate (Delf B2).

- Italian: Basic.

**SKILLS**

**Scientific topics:** Structural mechanics, Mechanics and physics of solids, Computational mechanics, Finite element methods, Boundary element methods, Fluid mechanics, Wave propagation, Lifting flows, Marine engineering.

**Programming Languages:** MATLAB, C/C++, CUDA, C#, Fortran, Python, R, Java.

**Typesetting Languages:** Latex, Markdown, Html.

**INTERESTS**

Digital photography, astronomy, travelling.

*Panagiotis Koutsogiannakis, 07–09–2024*