

Curriculum Vitae

Nikolaos Vasios

About / Contact Information

📍 29 Oxford St., Cambridge MA, 02138

☎ (+1)-617-909-8622

✉ nikvasios@gmail.com

💻 vasios.me

🌐 [linkedin.com/in/nickvasios](https://www.linkedin.com/in/nickvasios)

📧 gs.vasios.me

📧 rg.vasios.me

🐙 github.com/vasios

📺 [nick.vasios](https://www.youtube.com/channel/UC...)



Education

Harvard University, John A. Paulson School of Engineering and Applied Sciences

Ph.D. Candidate in Engineering Sciences

Concentration: Materials Science and Mechanical Engineering

Advisor: Prof. Katia Bertoldi

📍 Cambridge, MA, USA

📅 2017 – Present

Harvard University, John A. Paulson School of Engineering and Applied Sciences

M.Sc. in Materials Science & Mechanical Engineering

📍 Cambridge, MA, USA

📅 2015-2017

University of Thessaly, School of Engineering, Department of Mechanical Engineering

Diploma in Mechanical Engineering

5 yr curriculum (US Equivalent: B.Sc. + M.Sc.)

GPA: 8.77/10, (*Honors*)

Concentration: Computational Solid and Continuum Mechanics

Thesis Advisor: Prof. Nikolaos Aravas

Thesis: Crystal Plasticity [pdf]

📍 Volos, Greece

📅 2010 – 2015

Experience & Employment

Veryst Engineering LLC

Engineering Consulting Intern

📍 Needham, MA, USA

📅 May – August 2019

Mechatronics Institute, CE.R.T.H.

Engineering Intern

On the effect of initial crystal lattice orientation to the macroscopic plastic behavior of metal single crystals subjected to uni-axial deformation

📍 Volos, Greece

📅 July – August 2014

CE.R.T.H.

Research Assistant

Supervisor: Dr. L.A.Spyrou, Researcher Lecturer, CE.R.T.H./I.RE.TE.TH.

CompETe EU FP7-SME-2013 (Composites Evaluation in aircraft industry through Triplex-IR imaging system) funded by the European Union's Seventh Framework Program managed by REA. (2013 - 2015) *'Finite element thermal modelling and investigation of defects in CFRP composite panels'*

📍 Volos, Greece

📅 April – June 2014

Mechatronics Institute, CE.R.T.H.

Engineering Intern

Assessment and evaluation of crack-like flaws in pressure vessels and reactors in accordance with API Fitness for Service and British standards

📍 Volos, Greece

📅 July – August 2013

Publications

- [7] **Vasios, N.**, Gorissen, B., Deng, B., Bertoldi K., Transition Waves in Highly Tunable Bistable Membranes, *In Preparation*
- [6] Melancon, D., Gorissen, B., **Vasios, N.**, Torbati, M., Bertoldi. K., Harnessing shell instabilities for soft robotic jumping, *In Preparation*
- [5] Fernandes., M., Gross, A., **Vasios, N.**, Bertoldi, K., Soft Robotic Gripper with Camera-less Object Classification using Machine Learning, *In Preparation*
- [4] Sang Yup, K., Baines, S., Booth, J., **Vasios, N.**, Bertoldi, K., Kramer-Bottiglio, R., (2019), Reconfigurable Soft Body Trajectories using Unidirectionally Stretchable Composite Laminae, *Nature Communications*, (10), 3464
- [3] **Vasios, N.**, Gross, A., Soifer, S., Overvelde, J., Bertoldi, K., (2019), Harnessing Viscous Flow to Simplify the Actuation of Fluidic Soft Robots, *SoRo*, (10), 1089
- [2] **Vasios, N.**, Aktas, B., Narang, Y., Howe, R., Bertoldi, K., (2019), Numerical Analysis of Periodic Laminar and Fibrous media undergoing a Jamming Transition, *EJMSOL*, (75), 322-329
- [1] Boatti, E., **Vasios, N.**, Bertoldi, K., (2017). Origami Metamaterials for Tunable Thermal Expansion, *Advanced Materials*, (29), 26, [doi](#), [url](#)




Conferences & Workshops

- APS March Meeting**
Transition Wave Driven Sequential Actuation 📍 Boston Convention Center, Boston, MA, USA
📅 March 2-8 2019
- IMECE ASME International Mechanical Engineering Congress & Exposition**
Complex Output from a Single Input, Vasios N, Gross A.J., Overvelde J.T.B., Bertoldi K. 📍 Tampa Convention Center, Tampa FL, USA
📅 November 3-9 2017
- NewMech 2017 New England Annual Mechanics Workshop**
Complex Output from a Single Input, 3' teaser talk 📍 MIT, Cambridge, MA, USA
📅 October 14, 2017
- 54th **SES Annual Technical Meeting, Society of Engineering Science**
Complex Output from a Single Input, Vasios N, Gross A.J., Overvelde J.T.B., Bertoldi K. 📍 Northeastern University, Boston MA, USA
📅 July 25-28 2017
- 8th **GRACM International Congress on on Computational Mechanics (Attended)** 📍 Volos, Greece
📅 July 2015
- 5th Pan Hellenic Conference on Metallic Materials (Attended) 📍 Volos, Greece
📅 November 21-23 2013





Teaching

- Engineering Sciences 128 (Professor K. Bertoldi) - Teaching Fellow**
Computational Solid and Structural Mechanics 📍 Harvard University
📅 Spring 2019
An introduction to the finite element method and its applications to problems in the fields of structural and solid mechanics. Static and dynamic analysis of discrete and continuum systems in 1,2 and 3 dimensions.
- Applied Mathematics 201 (Professor B. Thomases) - Teaching Fellow** 📍 Harvard University
📅 Fall 2017
Physical Mathematics I
Introduction to methods for developing accurate approximate solutions for problems in the sciences that cannot be solved exactly, and integration with numerical methods and solutions. Topics include: dimensional analysis, algebraic equations, complex analysis, perturbation theory, matched asymptotic expansions, approximate solution of integrals.
- Engineering Sciences 128 (Professor K. Bertoldi) - Teaching Fellow** 📍 Harvard University
📅 Spring 2017
Computational Solid and Structural Mechanics
An introduction to the finite element method and its applications to problems in the fields of structural and solid mechanics. Static and dynamic analysis of discrete and continuum systems in 1,2 and 3 dimensions.












Mentoring

- Z. Qin - Visiting Bachelor's Student - University (CN)  2017-2018
Numerical Simulations and Experiments towards the design of multistable soft actuators
- D. Sachs - Visiting Master's Student - ETH Zurich, Zurich, (SW)  2017-2018
Numerical analysis and Experiments on the propagation of pneumatic waves in soft robotic systems
- S. Soifer - Visiting High School Student - New York (USA)  2017
Fabrication, Experiments and Data Processing of Soft Pneumatic Bending Actuators

Tutoring

- APMTH 205: Advanced Scientific Computing: Numerical Methods (Graduate Level)  2018
 APMTH 201: Physical Mathematics I (Graduate Level)  2018
 APMTH 111: Introduction to Scientific Computing (Undergraduate Level)  2017
 APMTH 121: Introduction to Optimization: Models and Methods (Undergraduate Level)  2017

Scholarships, Awards & Certifications

- Abaqus Structural Analysis Associate Certification [\[pdf\]](#)  2019
Dassault Systèmes  Johnston, RI, USA
- Certificate of Excellence and Distinction in Teaching for the course ES128  2019
Derek Bok Center for Teaching and Learning  Harvard University
- Certificate of Excellence and Distinction in Teaching for the course AM201  2017
Derek Bok Center for Teaching and Learning  Harvard University
- Certificate of Excellence and Distinction in Teaching for the course ES128  2017
Derek Bok Center for Teaching and Learning  Harvard University
- Budiansky-Chen Graduate Fellowship in Applied Mechanics  2015-2016
John A. Paulson School of Engineering & Applied Sciences  Harvard University
- Research Fellowships from California Institute of Technology, University of Pennsylvania and University of Illinois at Urbana Champaign  2015

Research Interests


Computational Mechanics, The Finite Element Method, Applied Mathematics, Continuum Mechanics, Solid and Fluid Mechanics, Constitutive Modeling, Stochastic Optimization, Inverse Problems


Skills

- Languages:** Greek: Mother Tongue, English: Fluent
- Coding Experience:** Python, Matlab, Fortran 77/90/95, C, C++, Mathematica
- Finite Element Analysis:** Abaqus Standard/Explicit, Abaqus Python Scripting, Abaqus CAE
 Abaqus with User Subroutines
- CAD/Graphics:** Solidworks, AutoCAD, Adobe Illustrator, Adobe Photoshop
- Typesetting/Productivity:** $\LaTeX 2_{\epsilon}$, Microsoft Office


Leadership / Membership / Volunteering


Graduate Student Council (GSC) - Mechanical Engineering Representative

 Cambridge, MA, USA


 2016-2017

[NEW.Mech 2016 Conference at Harvard University](#) - Host


 Cambridge, MA, USA

 October 2016

Fund Raising running contest supporting [Floga](#)

 Volos, Greece

Floga is an association of parents of children with neoplastic disease

 December 2013

Other Interests

Member of the local swimming team YMCA since 1996. Participation in many swimming competitions on yearly basis, qualifying for the National Age Groups Championship (2004-2010) and for the Open National Championship (2009). Main events: 400m I.M., 800m freestyle, 1500m freestyle. 5th place in the National Swimming Championship (2009 and 2010).