Dimitris Giovanis
Curriculum Vitae

Department of Civil and Systems Engineering
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Contact Information

Personal Webpage, **Linkedin**, **Google Scholar**, **Research Gate**.

Professional Experience

2020–present	**Assistant Research Professor**, *Department of Civil and Systems Engineering*, Johns Hopkins University.
2019–2020	**Assistant Research Scientist**, *Department of Civil and Systems Engineering*, Johns Hopkins University.
2016–2019	**Postdoctoral Fellow**, *Department of Civil and Systems Engineering*, Johns Hopkins University.
2014–2016	**Postdoctoral Fellow**, *School of Civil Engineering*, National Technical University of Athens.
2008–2009	**Civil Engineer**, *Greek Ministry of Culture and Sports*, Athens, Greece.

Other Affiliations

2021-present	**Hopkins Extreme Materials Institute (HEMI)**, Johns Hopkins University.
2021-present	**Natural Hazard Engineering Research Infrastructure (NHERI)**, *Computational Modeling and Simulation Center, (SimCenter)*, Berkeley University.
2020-present	**Institute for Data Intensive Engineering and Science (IDIES)**, Johns Hopkins University.

Education

2008–2014	**PhD, Civil Engineering**, *School of Civil Engineering*, National Technical University of Athens, Dissertation: Advanced stochastic finite element simulations and reliability analysis. Advisor: Prof. Vissarion Papadopoulos
2006–2008	**M.Sc., Computational Mechanics**, *School of Chemical Engineering*, National Technical University of Athens, Dissertation: Subset simulation for reliability analysis. Advisor: Prof. Manolis Papadrakakis
2000–2005	**5-year diploma, Civil (Structural) Engineering**, *School of Civil Engineering*, National Technical University of Athens, Dissertation: Modal pushover analysis for earthquake engineering. Advisor: Prof. Manolis Papadrakakis

Research Interests

- **Manifold learning & Machine learning**.
- **Reduced-order data-driven modeling**.
- **Uncertainty quantification**.
- **Inverse modeling**.
- **Stochastic methods**.
- **Scientific software design and development**.

Applications of Interest

- **Digital Twins**.

- **Material systems in extreme environments**, *Metallic glasses, energetic materials, brittle materials, carbon-based composite materials.*
- **Natural hazard risk assessment**, *Performance-based earthquake engineering, post-wildfire debris flow.*
- **Biomechanics**, *Traumatic brain injury (TBI).*
- **Process Analysis**, *Chemical Vapor Decomposition (CVD).*

Fellowships & Awards

2022 ***Hopkins Extreme Materials Institute Seed Grant Award.***

2022 ***Greek Fellowship Diaspora*** by Stavros Niarchos Foundation (SNF) and the Fulbright Foundation in Greece. Collaborative Research on Computational Methods for Predictive Modeling in Process Analysis via Reduced-Order Modeling and Manifold Learning, and Mentoring Undergraduate and Graduate students in Computational Mechanics.

Software

- `UQpy`–Uncertainty quantification using python: A general purpose open-source python toolbox for modeling uncertainty in the simulation of physical and mathematical systems (*github*).

Projects

Funded

2022 – 2023 ***Data-driven uncertainty quantification for energetic materials***, *Funding Source: Hopkins Extreme Materials Institute*, Role: PI, Amount:$25,000.

2020 – present ***Machine Learning Metallic Glass Structure-Property Relations***, *Funding Source: Sandia National Laboratories*, Role: Co-PI, Amount:$200,000 .

2021 – 2025 ***Computational Modeling and Simulation Center (SimCenter)***, *Funding Source: NSF*, Role: Co-PI, Amount:$100,000 .

2022 – 2025 ***COLLABORATIVE RESEARCH: Manifold Learning for Rapid Post Wildfire Debris Flow Hazard Assessment***, *Funding Source: NSF (Pending)*, Role: Co-PI, Amount:$433,000.

Other

2019 – 2024 ***Low-dimensional manifold learning for uncertainty quantification in complex multi-scale stochastic systems***, *Funding Source: Department Of Energy.*

2020 – 2029 ***A University Research Alliance for Materials Science in Extreme Environments***, *Funding Source: Defense Threat Reduction Agency.*

2021 – 2024 ***OptiSimCVD: a data-driven framework for prediction, sensitivity analysis and uncertainty quantification in Chemical Vapor Deposition (CVD) reactors***, *Funding Source: Luxembourg National Research Fund, CERATIZIT.*

2020 – 2022 ***A Computational Framework for "Extreme Scale" Uncertainty Quantification on Multi-scale Systems***, *Funding Source: Army Research Lab.*

2018 – 2019 ***An initial investigation of structural reliability from sparse data***, *Funding Source: Office of Naval Research.*

2016 – 2019 ***Efficient stochastic simulation-based computational modeling for structural design, reliability and life-cycle assessment***, *Funding Source: Office of Naval Research.*

2012 – 2017 ***Mastering the Computational Challenges in Numerical Modeling and Optimum Design of Carbon Nanotube Reinforced Materials***, *Funding Source: European Research Council.*

Publications

Journal Articles

2022 K. Upadhya, **D.G. Giovanis**, R. Jagani, A. Alshareef, A.K. Knutsen, C. L. Johnson, A. Caras, P.V. Bayly, M.D. Shields, and K.T. Ramesh. Data-driven Uncertainty Quantification in Computational Human Head Models. *Computer Methods in Applied Mechanics and Engineering*, volume 398, page 115108, 2022.

2022 **D.G. Giovanis** and M.D. Shields. Imprecise subset simulation. *Probabilistic Engineering Mechanics*, page 103293, 2022.

2022 K.R.dos Santos, **D.G. Giovanis**, and M.D. Shields. Grassmannian Diffusion Maps–Based Dimension Reduction and Classification for High-Dimensional Data. *SIAM Journal on Scientific Computing*, volume 44(2), pages B250–B274, 2022.

2022 K. Kontolati, D. Loukrezis, **D.G. Giovanis**, L. Vandanapu, and M.D. Shields. A survey of unsupervised learning methods for high-dimensional uncertainty quantification in black-box-type problems. *Journal of Computational Physics*, volume 464, page 111313, 2022.

2022 K. Kontolati, D. Loukrezis, K.R.M. dos Santos, **D.G. Giovanis**, and M D. Shields. Manifold learning-based polynomial chaos expansions for high-dimensional surrogate models. *International Journal for Uncertainty Quantification*, volume 12(4), page 39–64, 2022.

2022 K.R.M. dos Santos, **D.G. Giovanis**, K. Kontolati, D. Loukrezis, and M.D. Shields. Grassmannian diffusion maps based surrogate modeling via geometric harmonics. *International Journal for Numerical Methods in Engineering*, pages 1–23, 2022.

2021 M.D. Shields, **D.G. Giovanis**, and V.S. Sundar. Subset simulation for problems with strongly non-Gaussian, highly anisotropic, and degenerate distributions. *Computers & Structures*, volume 45(3), page 106431, 2021.

2020 **D.G. Giovanis** and M.D. Shields. Data-driven surrogates for high dimensional models using Gaussian process regression on the grassmann manifold. *Computer Methods in Applied Mechanics and Engineering*, volume 370, page 113269, 2020.

2020 A. Olivier, **D.G. Giovanis**, B.S. Aakash, M. Chauhan, L. Vandanapu, and M.D. Shields. UQpy: A general purpose python package and development environment for uncertainty quantification. *Journal of Computational Science*, volume 47, page 101204, 2020.

2019 V. Papadopoulos, I. Kalogeris, and **D.G. Giovanis**. A spectral stochastic formulation for nonlinear framed structures. *Probabilistic Engineering Mechanics*, volume 55, pages 90–101, 2019.

2019 X. Lu, **D.G. Giovanis**, J. Yvonnet, V. Papadopoulos, F. Detrez, and J. Bai. A data-driven computational homogenization method based on neural networks for the nonlinear anisotropic electrical response of graphene/polymer nanocomposites. *Computational Mechanics*, volume 64(2), pages 307–321, 2019.

2018 **D.G. Giovanis** and M.D. Shields. Variance-based simplex stochastic collocation with model order reduction for high-dimensional systems. *International Journal for Numerical Methods in Engineering*, volume 117(11), pages 1–38, 2018.

2018 **D.G. Giovanis** and M.D. Shields. Uncertainty quantification for complex systems with very high dimensional response using Grassmann manifold variations. *Journal of Computational Physics*, volume 364, pages 393–415, 2018.

2017 **D.G. Giovanis**, I. Papaioannou, D. Straub, and V. Papadopoulos. Bayesian updating with subset simulation using artificial neural networks. *Computer Methods in Applied Mechanics and Engineering*, volume 319, pages 124–145, 2017.

2017 G. Stavroulakis, **D.G. Giovanis**, V. Papadopoulos, and M. Papadrakakis. A GPU domain decomposition solution for spectral stochastic finite element method. *Computer Methods in Applied Mechanics and Engineering*, volume 327, pages 392–410, 2017.

2017   V. Papadopoulos, G. Soimoiris, and **D.G. Giovanis**. A neural network-based surrogate model for carbon nanotubes with geometrical nonlinearities. *Computer Methods in Applied Mechanics and Engineering*, volume 328, pages 411–430, 2017.

2016   **D.G. Giovanis**, M. Fragiadakis, and V. Papadopoulos. Assessment of epistemic uncertainty using incremental dynamic analysis and artificial neural networks. *Bulletin of Earthquake Engineering*, volume 14(2), pages 529–547, 2016.

2015   **D.G. Giovanis**, V. Papadopoulos, and G. Stavroulakis. An adaptive spectral Galerkin stochastic finite element method using variability response functions. *International Journal for Numerical Methods in Engineering*, volume 104(3), pages 185–208, 2015.

2015   **D.G. Giovanis** and V. Papadopoulos. Spectral representation-based neural network assisted stochastic structural mechanics. *Engineering Structures*, volume 104, pages 382–394, 2015.

2014   G Stavroulakis, **D.G. Giovanis**, M. Papadrakakis, and V. Papadopoulos. A new perspective on the solution of uncertainty quantification and reliability analysis of large-scale problems. *Computer Methods in Applied Mechanics and Engineering*, volume 276, pages 627–658, 2014.

2012   V. Papadopoulos, **D.G. Giovanis**, N.D. Lagaros, and M. Papadrakakis. Accelerated subset simulation with neural networks for reliability analysis. *Computer Methods in Applied Mechanics and Engineering*, volume 223, pages 70–80, 2012.

In Conference Proceedings

2021   **D.G. Giovanis** and M.D. Shields. Imprecise Subset simulation for reliability analysis. In *9th International Workshop on Reliable Engineering Computing (REC2021)*, Taormina, Italy, 2021.

2019   **D.G. Giovanis** and M.D. Shields. Structural reliability analysis from sparse data. In *3th International Conference on Applications of Statistics and Probability in Civil Engineering*, Seoul, S. Korea, 2019.

2019   **D.G. Giovanis** and M.D. Shields. High-dimensional interpolation on the Grassmann manifold using Gaussian process. In *3th International Conference on Applications of Statistics and Probability in Civil Engineering*, Seoul, S. Korea, 2019.

2018   **D.G. Giovanis** and M.D. Shields. Uncertainty quantification of high-dimensional complex systems using spectral clustering on the Grassmann manifold. In *8th International Conference on Computational Stochastic Mechanics (CSM8)*, Paros, Greece, 2018.

2009   **D.G. Giovanis**, V. Papadopoulos, N.D. Lagaros, and M. Papadrakakis. Structural reliability analysis using subset simulation and neural networks. In *10th International Conference on Structural Safety and Reliability (ICOSSAR)*, Osaka, Japan, 2009.

Book

2017   **V. Papadopoulos and D. G. Giovanis**, Stochastic Finite Element Methods: An Introduction, *Elsevier*.

Teaching

Instructor

Fall, 2022   **Gateway Computing Python (EN.500.113)**, Undergraduate, John Hopkins University.

Fall, 2022   **CaSE Coding (EN.560.291)**, Undergraduate, John Hopkins University.

Spring, 2022   **Applied Math for Engineers (EN.560.601)**, Graduate, John Hopkins University.

Spring/Fall, 2021   **Gateway Computing Python (EN.500.113)**, Undergraduate, John Hopkins University.

Fall, 2020   **Gateway Computing MATLAB (EN.500.114)**, Undergraduate, John Hopkins University.

Spring, 2016   **Optimum antiseismic design of structures**, *Graduate*, School of pedagogical and technological Education, Athens, Greece.

Spring, 2016	**Artificial Neural Networks and metaheuristic algorithms in structural mechanics**, Graduate, School of pedagogical and technological Education.
	Athens, Greece

Teaching Assistant

Spring, 2012-2016	**Stochastic Finite Elements**, Graduate, National Technical University of Athens.

Mentoring

Current

2019-present	**K. Kontolati**, *Ph.D candidate*, JHU.
2019-present	**R. Meena**, *Ph.D candidate*, JHU.
2021-present	**D. Tsapetis**, *Postdoc*, JHU.
2022	**Z. Tang**, *M.Sc. student*, JHU.

Past

2016-2019	**D. Alix-Williams**, *Ph.D. Candidate*, JHU.
2014–2019	**I. Kalogeris**, *Ph.D. Candidate*, National Technical University of Athens.
2016-2017	**T. Mavroudis**, *M.Sc. Candidate*, School of pedagogical and technological Education.
2016-2017	**I. Trikaliotis**, *M.Sc. Candidate*, School of pedagogical and technological Education.

Service

Outreach

Development of a Coursera course on Uncertainty Quantification (In-progress)

Reviewer for peer-review journals

Journal of Computer Methods in Applied Mechanics and Engineering, Journal of Probabilistic Engineering Mechanics, Journal of Computational Physics, International Journal for Numerical Methods in Engineering, Journal of Artificial Intelligence, Journal of Computational Methods in Structural Engineering, Journal of Pressure Vessel Technology, Energy Exploration & Exploitation, Journal of Engineering Mechanics, Mechanical Systems and Signal Processing, Journal of Computational Design and Engineering, Soil Dynamics and Earthquake Engineering, Advances in Engineering Software, International Journal of Structural Stability and Dynamics, Archive of Applied Mechanics

Professional Memberships

ASCE/EMI	Member of the Probabilistic Methods Committee (Since 2022)
ASCE/EMI	Member of the Machine Learning in Mechanics Committee (Pending)
SIAM/UQ	Member of the Activity Group on Uncertainty Quantification (Since 2022)
UNCECOMP	Member of the Scientific Committee, Conference on Uncertainty Quantification in Computational Sciences and Engineering (Since 2019)
GRACM	Member of the Greek Association of Computational Mechanics (Since 2015)
TEE	Member of the Technical Chamber of Greece (Since 2006)

Department/University Service (JHU)

2016–present	Assistant Coach for the man's Water Polo team
2022	Judge in the Student Paper Competition, 8th Annual Johns Hopkins Postdoctoral Conference

Organized Conference Sessions

UNCECOMP 2023	Learning from small data: Data-driven methods and machine learning for uncertainty quantification in engineering applications

UNCECOMP 2021	Data-driven Uncertainty Quantification and Data Assimilation using manifold learning and Sparse and Low-rank Representations
WCCM 2020	Physics-based data-driven modeling and uncertainty quantification in computational mechanics
UNCECOMP 2019	Surrogate and reduced-order modeling for stochastic simulation of physical systems

Organized workshops

June 2022, 2021	MSEE Short Course: Uncertainty Quantification in Physics-Based Modeling Using Python. Offered for the Materials Science in Extreme Environments University Research Alliance (MSEE URA).

Other Activities

EMI 2022	Judge for the Student Paper Competition in EMI 2022

Conferences and Invited Talks

Invited Talks

2022	**D.G. Giovanis**. Manifold learning-based surrogate modeling for uncertainty quantification. Department of Civil, Environmetnal and Geo-Engineering, 2022. University of Minnesota.
2020	**D.G. Giovanis**. Manifold learning-based surrogate modeling for uncertainty quantification in amorphous solids. Department of Civil and Systems Engineering, 2020. Jonhs Hopkins University.
2019	**D.G. Giovanis**. Sculpting the future of stochastic material design through advanced surrogate modeling and manifold-learning techniques. Department of Civil and Environmental Engineering Seminar Series, 2019. Princeton University.
2019	**D.G. Giovanis**. Quantification and propagation of uncertainty & reliability analysis of engineering systems. Warwick Centre for Predictive Modelling, 2019. University of Warwick, UK.
2019	**D.G. Giovanis**. Advanced surrogate models for uncertainty quantification. Department of Mechanical Engineering Seminar Series, 2019. University of Michigan-Dearborn.
2019	**D.G. Giovanis**. An active manifold-learning framework for uncertainty quantification in complex systems. School of Engineering and Applied Sciences, 2019. Harvard University.
2018	**D.G. Giovanis**. Uncertainty quantification for high-dimensional complex systems using grassmann manifold variations. Department of Civil Engineering Seminar Series, 2018. Concordia University, Montreal, Canada.
2015	**D.G. Giovanis**. A variability response function-based adaptive spectral galerkin stochastic finite element method. Institute of Scientific Computing, 2015. University of Braunschweig, Germany.
2014	**D.G. Giovanis**. Manifold learning-based surrogate modeling for uncertainty quantification. Engineering Risk Analysis Group, 2014. Technical University of Munich, Germany.
2011	**D.G. Giovanis**. Accelerated subset simulation using artificial neural networks. Civil Engineering Seminar Series, 2011. Universidad Autonoma Metropolitana, City of Mexico, Mexico.

Presentations at Conferences

* presenting author

2022	K. Upadhya*, R. Jagani, **D.G. Giovanis**, A. Alshareef, A.K. Knutsen, C. L. Johnson, A. Caras, P.V. Bayly, M. D. Shields, and K. T. Ramesh. Effect of human head shape on the risk of traumatic brain injury: A gaussian process regression-based machine learning approach. Taipei, China, 2022. World Congress of Biomechanics (WCB 2022).
2022	D. Tsapetis*, **D.G. Giovanis**, and M.D. Shields. Uqpy version 4: Refactored, continuously integrated and docker ready for an enhanced user and developer experience. Atlanta, 2022. SIAM Conference on UQ (UQ22).

2022   **D.G. Giovanis*** and M. D. Shields. Incorporating distribution-form and parameter uncertainty into simulation-based reliability analysis. Atlanta, 2022. SIAM Conference on UQ (UQ22).

2022   K. Kontolati*, D. Loukrezis, K. R. M. dos Santos, **D.G. Giovanis**, and M. D. Shields. Manifold learning for forward and inverse uq in high dimensions. Atlanta, 2022. SIAM Conference on UQ (UQ22).

2021   K. Upadhyay*, **D.G. Giovanis**, and K.T. Ramesh. Manifold learning-based surrogate modeling for uncertainty quantification in subject-specific computational models of human head. 2021. Society of Engineering Science Annual Meeting (Category: Frontiers Matter).

2021   **D.G. Giovanis*** and M.D. Shields. Local gaussian process surrogate for uncertainty quantification in high-dimensional engineering systems using grassmannian learning. Taormina, Italy, 2021. 9th International Workshop on Reliable Engineering Computing (REC2021).

2021   **D.G. Giovanis*** and M.D. Shields. Local Gaussian process surrogate for uncertainty quantification in high-dimensional engineering systems using Grassmannian learning. In *Engineering Mechanics Institute Conference*, Boston, USA, 2021.

2021   **D.G. Giovanis*** and M.D. Shields. Imprecise subset simulation for reliability analysis. 2021. Engineering Mechanics Institute Conference (EMI).

2021   **D.G. Giovanis*** and M.D. Shields. Imprecise Subset simulation for reliability analysis. In *9th International Workshop on Reliable Engineering Computing (REC2021)*, Taormina, Italy, 2021.

2021   **D.G. Giovanis***, A. Olivier, B.S. Aakash, M. Chauhan, L. Vandanapu, and M.D. Shields. Uqpy: an open source package and development environment for uncertainty quantification. Athens, Greece, 2021. 4th edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2021).

2021   **D.G. Giovanis***, K.R.M. dos Santos, and M. D. Shields. Grassmannian diffusion maps for uncertainty quantification in high-dimensional engineering systems,. Paris, France, 2021. 14th World Congress on Computational Mechanics (WCCM).

2021   R. Meena*, **D.G. Giovanis**, and M.D. Shields. Predicting plasticity in 2d model metallic glasses using the local yield stress and diffusion maps. Bilbao, Spain, 2021. SIAM Conference on mathematical aspects of materials (MS21).

2021   K. Kontolati*, D. Loukrezis, K.R.M. dos Santos, **D.G. Giovanis**, and M.D. Shields. Nonlinear manifold-learning based dimensionality reduction for surrogate modeling and uncertainty quantification. San Diego, 2021. Mechanistic Machine Learning and Digital Twins for Computational Science.

2019   **D.G. Giovanis*** and M.D. Shields. Structural reliability analysis from sparse data. In *3th International Conference on Applications of Statistics and Probability in Civil Engineering*, Seoul, S. Korea, 2019.

2019   **D.G. Giovanis*** and M.D. Shields. High-dimensional interpolation on the Grassmann manifold using Gaussian process. In *3rd International Conference on Applications of Statistics and Probability in Civil Engineering*, Seoul, S. Korea, 2019.

2019   **D.G. Giovanis*** and M.D. Shields. An efficient loval kriging surrogate for high-dimensional data using non-linear projections. Crete, Greece, 2019. 3rd edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2021).

2019   M.D. Shields* and **D.G. Giovanis**. Uqpy: Uncertainty quantification with python. Crete, Greece, 2019. 3rd edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2021).

2019   M.D. Shields* and **D.G. Giovanis**. Affine invariant ensemble mcmc for subset simulation on high dimensional non-gaussian probability spaces. Caltech, CA, 2019. Engineering Mechanics Institute Conference (EMI).

2018 **D.G. Giovanis*** and M.D. Shields. Uncertainty quantification for complex systems in high dimensions using grassmann manifold variations and machine learning. New York, 2018. 13th World Congress on Computational Mechanics (WCCM).

2018 **D.G. Giovanis*** and M.D. Shields. A multi-element sampling method based on grassmann manifold variations of high-dimensional solution. Florianopolis, Brazil, 2018. International Conference on Vulnerability and Risk Analysis and Management (ICVRAM).

2018 **D.G. Giovanis*** and M.D. Shields. Adaptive variance-based multi-element simplex stochastic collocation with model order reduction for high-dimensional response. M.I.T, Boston, 2018. Engineering Mechanics Institute Conference (EMI).

2018 M.D. Shields* and **D.G. Giovanis**. Quantifying uncertainty in structural reliability estimates in the presence of sparse data. Paros, Greece, 2018. 8th International Conference on Computational Stochastic Mechanics (CSM8).

2018 M.D. Shields* and **D.G. Giovanis**. Affine invariant ensemble mcmc for subset simulation on high dimensional non-gaussian probability spaces. Paros, Greece, 2018. 8th International Conference on Computational Stochastic Mechanics (CSM8).

2018 M.D. Shields*, V.S. Sundar, J. Zhang, and **D.G. Giovanis**. Conditional sampling using affine invariant ensemble mcmc: Application to subset simulation. Zurich, Switzerland, 2018. IFIP Working Group.

2018 I. Kalogeris*, V. Papadopoulos, and **D.G. Giovanis**. Using ssfem for the stochastic analysis of nonlinear frame structures. Paros, Greece, 2018. 8th International Conference on Computational Stochastic Mechanics (CSM8).

2017 **D.G. Giovanis*** and M.D. Shields. Adaptive variance-based multi-element simplex stochastic collocation. Rhodes, Greece, 2017. 3rd edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017).

2017 G. Stavroulakis*, **D.G. Giovanis**, V. Papadopoulos, and M. Papadrakakis. Parallel and scalable solution schemes for metaheuristic optimization algorithms considering uncertainties, in the context of reliability analysis. Rhodes, Greece, 2017. 3rd edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017).

2017 G. Soimoiris*, **D.G. Giovanis**, and V. Papadopoulos. Using artificial neural networks for the simulation of carbon nanotubes with geometrical nonlinearities. Rhodes, Greece, 2017. 3rd edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017).

2017 G. Soimiris*, V. Papadopoulos, and **D.G. Giovanis**. Geometrically nonlinear simulation of carbon nanotubes using a neural network-based surrogate modelling technique. Montreal, Canada, 2017. 14th U.S. National Congress on Computational Mechanics (USNCCM14).

2017 M.D. Shields* and **D.G. Giovanis**. An adaptive sampling method based on grassmann manifold variations. Montreal, Canada, 2017. 14th U.S. National Congress on Computational Mechanics (USNCCM14).

2017 I. Kalogeris*, V. Papadopoulos, and **D.G. Giovanis***. Using ssfem for the stochastic analysis of nonlinear frame structures. Rhodes, Greece, 2017. 3rd edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017).

2015 **D.G. Giovanis***, G. Stavroulakis, and V. Papadopoulos. A vrf-based sparse ssfem of non-gaussian stochastic fields. Barcelona, Spain, 2015. 11th World Congress on Computational Mechanics (WCCM).

2015 **D.G. Giovanis***, I. Papaioannou, D. Straub, and V. Papadopoulos. Neural network based bayesian updating with subset simulation. Crete, Greece, 2015. 2nd edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017).

2015   **D.G. Giovanis***, I. Papaioannou, D. Straub, and V. Papadopoulos. Bayesian updating with subset simulation and neural networks. Volos, Greece, 2015. 8th GRACM International Congress on Mechanics (GRACM).

2015   **D.G. Giovanis*** and V. Papadopoulos. Neural network-based reliability analysis using subset simulation - application to random fields. Buenos Aires, Argentina, 2015. 1st Pan-American Congress on Computational Mechanics (PANACM).

2015   G. Stavroulakis*, **D.G. Giovanis**, M. Papadrakakis, and V. Papadopoulos. Solution of large-scale problems in structural analysis: Monte carlo simulation vs. spectral stochastic finite element method. Istanbul, Turkey, 2015. 13th U.S. National Congress on Computational Mechanics (USNCCM13).

2015   G. Stavroulakis*, **D.G. Giovanis**, V. Papadopoulos, and M. Papadrakakis. Assessing the numerical efficiency of monte carlo and spectral stochastic fem in structural problems. Barcelona, Spain, 2015. 11th World Congress on Computational Mechanics (WCCM).

2015   G. Stavroulakis*, **D.G. Giovanis**, V. Papadopoulos, and M. Papadrakakis. Accelerating the solution of stochastic soil-structure interaction problems with domain decomposition methods. Crete, Greece, 2015. 2nd edition of the International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017).

2015   V. Papadopoulos*, G. Stavroulakis, **D.G. Giovanis**, and M. Papadrakakis. Monte carlo simulation vs spectral galerkin method: a numerical performance study. Buenos Aires, Argentina, 2015. 1st Pan-American Congress on Computational Mechanics (PANACM).

2015   M. Fragiadakis*, **D.G. Giovanis**, and V. Papadopoulos. Quick seismic reliability assessment of liquid storage tanks using neural networks. Crete, Greece, 2015. 5th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN 2015).

2014   **D.G. Giovanis*** and M. Fragiadakis. Neural network based incremental dynamic analysis for seismic epistemic uncertainty assessment. Istanbul, Turkey, 2014. 2nd European Conference on Earthquake Engineering.

2014   **D.G. Giovanis*** and M. Fragiadakis. Neural network based incremental dynamic analysis for seismic epistemic uncertainty assessment. Istanbul, Turkey, 2014. 2nd European Conference on Earthquake Engineering.

2013   **D.G. Giovanis*** and V. Papadopoulos. Stochastic finite element analysis using monte carlo simulation and neural networks. Columbia University, NY, 2013. 11th International Conference on Structural Safety and Reliability (ICOSSAR).

2009   **D.G. Giovanis***, V. Papadopoulos, N. D. Lagaros, and M. Papadrakakis. Neural network based subset simulation for reliability analysis. Rhodes island, Greece, 2009. 2nd South-East European Conference on Computational Mechanics (SEECCM).

2009   **D.G. Giovanis*** and V. Papadopoulos. Neural network-based accelerated subset simulation. Columbia University, NY, 2009. 11th International Conference on Structural Safety and Reliability (ICOSSAR).

        D.G. Giovanis* and M.D. Shields. Uncertainty quantification of high-dimensional complex systems using spectral clustering on the Grassmann manifold. In *8th International Conference on Computational Stochastic Mechanics (CSM8)*, Paros, Greece.

        D.G. Giovanis*, V. Papadopoulos, N.D. Lagaros, and M. Papadrakakis. Structural reliability analysis using subset simulation and neural networks. In *The 10th International Conference on Structural Safety and Reliability (ICOSSAR)*, Osaka, Japan.