Gérard-Philippe Zéhil, Eng., Ph.D.

http://gpzehil.altervista.org/ Updated on August 4, 2023

Contact Information

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Professional Experience

Notre Dame University (NDU), Zouk Mosbeh, Lebanon — *Sep. 2020 – present*
Department of Civil and Environmental Engineering
Associate Professor

Notre Dame University (NDU), Zouk Mosbeh, Lebanon — *Sep. 2014 – Aug. 2020*
Department of Civil and Environmental Engineering
Assistant Professor

Duke University, Durham, NC, USA — *summer 2014*
Department of Mechanical Engineering and Materials Science
Postdoctoral Research Fellow – M.I.T.'s Soft Active Materials Laboratory

Duke University, Durham, NC, USA — *spring 2014*
Department of Civil and Environmental Engineering
Visiting Assistant Professor

Duke University, Durham, NC, USA — *2010 – 2013*
Department of Civil and Environmental Engineering
Research Assistant – Structural Dynamics Laboratory

ARTELIA Engineering, Paris, France — *2006 – 2013*
Divison of Transport and Infrastructure, Subdivision of Bridges
Bridge Engineering Project Manager

THALES Engineering and Consulting, Paris, France — *2005 – 2006*
Divison of Transport and Infrastructure, Subdivision of Bridges
Principal Bridge Design Engineer

SECOA Engineering, Paris, France — *2003 – 2005*
Bridge Design Engineer

Education

Duke University, Durham, NC, USA — *Dec. 2013*
Department of Civil and Environmental Engineering
Ph.D. in Materials, Structures and Geosystems (GPA 4.0)
Dissertation title: "Modeling of Nonlinear Viscoelastic Solids with Damage Induced Anisotropy, Dissipative Rolling Contact Mechanics, and Synergistic Structural Composites." (URL)

Centre des Hautes Études de la Construction, Paris, France — *June 2003*
Department of Reinforced and Prestressed Concrete
Post-Graduate Degree in Structural Engineering (GPA 4.0).

Université Saint-Joseph , Mar-Roukoz, Lebanon — *June 2002*
Faculty of Engineering - École Supérieure d'Ingénieurs de Beyrouth
French course of study equivalent to:
M.S. in Civil Engineering - Infrastructure and Transport (GPA 4.0).

Université Saint-Joseph , Mar-Roukoz, Lebanon *June 2000*
Faculty of Engineering - École Supérieure d'Ingénieurs de Beyrouth
French course of study equivalent to:
B.S. in Civil and Environmental Engineering (GPA 4.0).

Professional Training and Internships

ARTELIA Engineering, Paris, France *Jan. 27–29, 2009*
Training
"Design, planning and execution of road earthworks."

ARTELIA Engineering, Paris, France *May 23, 2008*
Training
"Water act: classified facilities with respect to environmental protection."

CREDEF (research, study, diagnostic and training center), Paris, France *June 11–13, 2007*
Training
"Project management in the context of public procurement."

École Nationale des Ponts et Chaussées, Paris, France, *Dec. 11–13, 2006*
Training
"Eurocodes (European building codes) #3 and 4: design of metallic and composite structures; Application to bridges."

École Nationale des Ponts et Chaussées, Paris, France, *Oct. 2–4, 2006*
Training
"Eurocodes (European building codes) #2: design of reinforced and prestressed concrete structures; Application to bridges."

École Nationale des Ponts et Chaussées, Paris, France, *Sept. 28–30, 2004*
Training
"Eurocodes (European building codes) #2: design of reinforced and prestressed concrete structures; Application to bridges."

Dar Al-Handasah Consultants, Beyrouth, Lebanon, *Summer 2001*
Internship
Structural design work on the Dubai Airport project.

École Supérieure d'Ingénieurs de Beyrouth, Mar Roukoz, Lebanon, *Summer 1999*
Training
On-site training on the operation of advanced topographic equipments.

Teaching Experience

EGR 201L - Mechanics of Solids *Spring 2014*
Duke University, Durham, NC, USA
Instructor.

CEN 202 - Statics *Fall 2014 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 203 - Mechanics of Materials *Fall 2014 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 210 - Structures I *Spring 2020*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 311 - Structures II *Fall 2015 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 489 - Approved Professional Training *Summer 2015 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 598 - Engineering Design I *Fall 2014 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 599 - Engineering Design II *Spring 2015 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 600/407 - Advanced Mechanics of Materials *Spring 2016 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 603/521 - Dynamics of Structures *Spring 2021 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 606/580 - Finite Element Methods *Fall 2014 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

CEN 611/524 - Prestressed Concrete *Spring 2017 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Instructor.

Uncertainty, Design, and Optimization *Spring 2012*
Duke University, Durham, NC, USA
Graduate Teaching Assistant: conducted weekly recitation classes and office hours; supervised student's projects; graded homework assignments.

Mechanics of Solids *Fall 2012*
Duke University, Durham, NC, USA
Graduate Teaching Assistant: conducted weekly recitation classes and office hours; supervised lab experiments; graded homework assignments and lab reports.

Advanced Theory and Design of Reinforced and Prestressed Concrete Structures *2005-2010*
ARTELIA, THALES, Paris, France
Conducted graduate level lectures and practiced individual coaching of recent graduates in civil and structural engineering working on the design of reinforced concrete structures.

Bridge Design *2005-2010*
ARTELIA, THALES, Paris, France
Conducted graduate level lectures and practiced individual coaching of recent graduates in civil and structural engineering working on the design of concrete bridges, steel bridges and composite bridges.

Research Experience

Notre Dame University – Louaize, Zouk Mosbeh, Lebanon *2014 – present*
Assistant/Associate Professor
Research work drawing upon and impacting the fields of computational mechanics, artificial intelligence and machine learning, contact mechanics, material modeling in finite strain, linear and nonlinear viscoelasticity, material damage and recovery, damage induced anisotropy, soft materials,

rolling resistance, composite structures, structural dynamics and blast dynamics. Recent activities focus on developing and modeling new materials, structural elements, systems and components, for applications in civil engineering structures, and in other fields. These include:

- Studying the behavior of blast waves in complex urban environments, including wave-structure interactions.
- Testing and modeling work on (viscoelastic) rolling resistance, to evaluate the effects of:
  - boundary condition variations, and
  - material and geometric nonlinearities.
- Analytical modeling and/or laboratory testing of the cracking behavior of:
  - particulate composite materials subjected to thermal loads,
  - fiber and fiber-reinforced composite materials subjected to thermal loads, and
  - brittle materials such as concretes, mortars and rocks under the effect of soundless cracking demolition agents.
- Analytical and numerical modeling of heterogeneous materials and particulate composites by means of 2D and 3D finite-element representations, at the mesoscale, to predict homogenized thermal, electrical and mechanical properties.
- Developing novel waste-concrete materials, including:
  - recycling of plastic-waste materials in concrete mixtures, and
  - recycling demolition-waste in new concrete mixtures (with and without fibers).
- Developing computational models to predict the mechanical behavior of shearing vanes in fresh concrete mixes and cement pastes.
- Modeling and laboratory testing of the behavior of sandwich lightweight panels subjected to lateral loads, such as wind and earthquake loads.
- Developing novel lightweight composites with improved structural performances.
- Semi-analytical modeling of spinning viscoelastic layers subjected to gravity loads, with broad applications such as in material identification, precision measurement, propellant grains and tidal locking.
- Experimental study and modeling of soil erosion (piping) in earth dams.
- Experimental study and modeling of the formwork pressure of self-consolidating concrete.
- Modeling of the human eye and use of Optical Coherence Tomography (OCT) imaging to improve the diagnosis and the management of retina and optic nerve diseases.
- Studying the effects of blasts on structures in complex environments, based on field observations (e.g. August 4, 2020 blast, in Beirut) and the numerical modeling of fluid-structure interactions.

Duke University, Durham, NC, USA *2010 - 2013*
Research Assistantship
Research activity focused on developing and applying new viscoelastic materials, and material models, to engineering structures. Topics addressed in doctoral research include:

- the unified constitutive modeling of rubber-like materials by means of a new, three dimensional, behavioral characterization in finite strain, valid in a broad range of loading conditions, such as cyclic loading, monotonic loading (including at high strain rates), and damage,
- the constitutive modeling of the Mullins effect induced anisotropy in elastomers,
- the three-dimensional dynamic modeling of incompressible, compressible isotropic, transversely isotropic and fully orthotropic viscoelastic layers of arbitrary thickness, and of plane and spherical shape, by means of new boundary element formulations,
- the solving of steady-state frictional rolling and sliding contact problems, in two and three dimensions, using novel moving-contact algorithms,
- the application of the above-mentioned modeling techniques and solving strategies to the rolling resistance of rigid cylinders and spheres on viscoelastic layers, and to the rolling resistance of rigid spheres with viscoelastic coatings,

- the elaboration of simplified and highly cost-efficient computational approaches to viscoelastic rolling resistance,
- the design of a new experimental setup to explore the influence of material nonlinearities on rolling resistance,
- the study of composite structural members involving mechanical synergies between material components resulting in improved structural behaviors and mechanical performances.

ARTELIA, THALES, Paris, France *2005 - 2010*
Project-Embedded Research Activity
Professional engineering projects included research activities such as developing new materials, designing experiments, and fitting and validating new models. Several research proposals were submitted and resulted in official research funding in the form of tax reductions. Examples of project-embedded research tasks include:

- developing a new fire protection system for extradossed prestressing tendons meeting severe specification requirements,
- developing a new formulation of polypropylene fibered concrete meeting specific requirements in terms of fire resistance and resistance to blasting.

IRISA - INRIA, reserach unit of Rennes, Rennes, France, *Summer 2000*
Research Internship
Implemented a new object animation module in C++, based on the laws of continuum mechanics and strength of materials, and integrated this module into an existing software platform under Unix.

Relevant Graduate Course Work

Mathematical Modeling
Linear System Theory
Risk and Reliability Analysis
Uncertainty Quantification

Numerical Analysis
Scientific Computing
Finite Element Method
Nonlinear Finite Element Analysis

Continuum Mechanics
Mechanics of Soft Materials
Fluid Mechanics
Hydraulics

Intermediate Dynamics
Advanced Structural Dynamics
Earthquake Structural Engineering

Geology
Topography
Soil and Rock Mechanics
Environmental and Geotechnical Engineering
A&D of Foundations and Retaining Structures

Environmental Impact Assessment
Academic Writing

Advanced T&D[1] of Reinforced Concrete
Advanced T&D[1] of Prestressed Concrete
Analysis and Design of Composite Structures
Civil and Industrial Steel Construction

Structural Analysis
Plates and Shells
Theory of Inelastic Structures
Analysis and Design of Building Structures
Advanced Design of Bridges
Dams
Special Works and Structures

Underground Works and Tunneling
Linear Infrastructures and Road Design

General Construction Methods
Industrialized Constructions

Sea and Air Transport
Urban Transport

Quality Management in Construction
Management and Planning of Large Scale Projects
Marketing and Communication
General and Analytical Accounting
Financial Management of Firms

[1] Theory and Design

Honors, Grants and Awards

Principal investigator, LBP 18.5M research grant (ref. 364/Sad) from the *National Council for Scientific Research* (CNRS) in Lebanon, for work on a "Novel approach to recycling XLPE as a substitute to concrete aggregates – Influence on the behavioral properties of XLPE-concrete." (2018).

Best conference paper presentation award, (3^{rd}) *International Conference on Energy Engineering and Smart Materials*, Milan, Italy (2018).

Supervisor of the award winning student team of the *ACI Eco-concrete competition* (2018).

Supervisor of the 2^{nd} price winning student team of the *Innovate for Lebanon Competition*, Solid Waste Track (2017).

Senol Utku Award for the best peer-reviewed journal paper from Duke University (2014).

Travel award for the 12^{th} U.S. National Congress on Computational Mechanics held in Raleigh, NC, July 22-25, 2013.

Valedictorian award, *Centre des Hautes Etudes de la Construction* and *Centre d'Information sur le Ciment et ses Applications*, Paris, France, June 2003.

Valedictorian award, *Université Saint-Joseph*, Mar Roukoz, Lebanon, June 2002.

Graduated with the highest distinction in Infrastructure and Transport from *École Supérieure d'Ingénieurs de Beyrouth*, Mar Roukoz, Lebanon, June 2002.

JOURNAL PUBLICATIONS

Refereed Journal Articles (published)

Nancy Dib, **G.-P. Zéhil*** & S. Rigby (2022), "On the blast-wave shielding effect of porous buildings," *Journal of Fluids and Structures*, 115, 103787. DOI: 10.1016/j.jfluidstructs.2022.103787.

P. Matar*, **G.-P. Zéhil**, J. Assaad & T. Barkaya (2021), "Use of polypropylene fibers in concrete fabricated with recycled aggregates," *Vestnik of Tver State Technical University. Series "Building. Electrical Engineering and Chemical Technology,"* 1(9), 14–24. DOI: 10.46573/2658-7459-2021-1-14-24.

C. Ghnatios*, **G.-P. Zéhil** & C. Habchi (2021), "Modeling of the vane test using a power-law fluid and model order reduction techniques: application to the identification of cement paste properties," *Comptes Rendus Mécanique*, 349(3), 501–517. DOI: 10.5802/crmeca.97.

Nancy Dib & **G.-P. Zéhil*** (2021), "Generalized modeling of the effective thermal conductivity of particulate composites," *Materials Today Communications*, 27, 102283.
DOI: 10.1016/j.mtcomm.2021.102283.

P. Matar* & **G.-P. Zéhil** (2020), "Effects of polypropylene fibers on the physical and mechanical properties of recycled aggregate concrete," *Journal of Wuhan University of Technology - Materials Science Edition*, 34(6), 1327–1344. DOI: 10.1007/s11595-019-2196-6.

G.-P. Zéhil*, C. Ghnatios & R. Himo (2020), "Soft computing approaches to homogenized properties of inclusion-modified concrete mixtures: Application to XLPE-modified concrete," *Journal of Building Engineering*, 29, 101161 (16 pages). DOI: 10.1016/j.jobe.2019.101161.

G.-P. Zéhil* & H.P. Gavin (2019), "Rolling resistance of a hard sphere on rubber sheets: limitations of linear viscoelastic modeling and influence of nonlinearities," *International Journal of Applied Mechanics*, 11(7), 1950066 (28 pages). DOI: 10.1142/S1758825119500662.

G.-P. Zéhil & J. Assaad* (2019), "Feasibility of concrete mixtures containing cross-linked polyethylene waste materials," *Construction and Building Materials*, 226, 1–10.
DOI: 10.1016/j.conbuildmat.2019.07.285.

G.-P. Zéhil* & H.P. Gavin (2019), "The effect of boundary condition variations on the rolling resistance of a hard sphere on rubber sheets," *International Journal of Applied Mechanics*, 11(5), 1950043 (25 pages). DOI: 10.1142/S1758825119500431.

J. Assaad, E. Chakar & **G.-P. Zéhil*** (2018), "Testing and modeling the behavior of sandwich lightweight panels against wind and seismic loads," *Engineering Structures*, 175, 457–466. DOI: 10.1016/j.engstruct.2018.08.041.

E. Silverstein, S. Freedman, **G.-P. Zéhil**, K. Jiramongkolchai & M. El-Dairi* (2016), "The macula in pediatric glaucoma: quantifying the inner and outer layers via optical coherence tomography automatic segmentation," *Journal of American Association for Pediatric Ophthalmology and Strabismus*, 20(4), 332–336. DOI: 10.1016/j.jaapos.2016.05.013.

G.-P. Zéhil* & H.P. Gavin (2014), "Rolling resistance of a rigid sphere with viscoelastic coatings," *International Journal of Solids and Structures*, 51, 822–838. DOI: 10.1016/j.ijsolstr.2013.11.009.

G.-P. Zéhil* & H.P. Gavin (2014), "Two and three-dimensional boundary element formulations of compressible isotropic, transversely isotropic and orthotropic viscoelastic layers of arbitrary thickness, applied to the rolling resistance of rigid cylinders and spheres," *European Journal of Mechanics – A/Solids*, 44, 175–187. DOI: 10.1016/j.euromechsol.2013.10.015.

P.S. Harvey, **G.-P. Zéhil** & H.P. Gavin* (2014), "Experimental validation of simplified models for rolling isolation systems," *Earthquake Engineering and Structural Dynamics*, 43, 1067–1088. DOI: 10.1002/eqe.2387.

G.-P. Zéhil* & H.P. Gavin (2013), "Unified constitutive modeling of rubber-like materials under diverse loading conditions," *International Journal of Engineering Science*, 62, 90–105. DOI: 10.1016/j.ijengsci.2012.09.002.

G.-P. Zéhil* & H.P. Gavin (2013), "Simplified approaches to viscoelastic rolling resistance," *International Journal of Solids and Structures*, 50(6), 853–862. DOI: 10.1016/j.ijsolstr.2012.09.025.

G.-P. Zéhil* & H.P. Gavin (2013), "Simple algorithms for solving steady-state frictional rolling contact problems in two and three dimensions," *International Journal of Solids and Structures*, 50(6), 843–852. DOI: 10.1016/j.ijsolstr.2012.11.021.

G.-P. Zéhil* & H.P. Gavin (2013), "Three-dimensional boundary element formulation of an incompressible viscoelastic layer of finite thickness applied to the rolling resistance of a rigid sphere," *International Journal of Solids and Structures*, 50(6), 833–842. DOI: 10.1016/j.ijsolstr.2012.11.020.

Conference Papers and Abstracts

G.-P. Zéhil (2023), "On the intermediate-field blast wave shielding effect of a porous wall," 5^{th} International Conference on Advances in Computational Tools for Engineering Applications (ACTEA '23), Lebanon, July 5 – 7. DOI: 10.1109/ACTEA58025.2023.10193988.

G.-P. Zéhil & Nancy Dib (2023), "A brief review of simplified modeling approaches commonly used in engineering," 5^{th} International Conference on Advances in Computational Tools for Engineering Applications (ACTEA'23), Lebanon, July 5 – 7. DOI: 10.1109/ACTEA58025.2023.10194146.

Christine Saab & **G.-P. Zéhil** (2023), "About machine learning techniques in water quality monitoring," 5^{th} International Conference on Advances in Computational Tools for Engineering Applications (ACTEA'23), Lebanon, July 5 – 7. DOI: 10.1109/ACTEA58025.2023.10193911.

R. Himo, **G.-P. Zéhil** & C. Ghnatios (2019), "2D modeling of the thermal conductivity of XLPE-modified concrete," Congrès Annuel de la Société Francaise de Thermique (SFT 2019), Nantes, France, June 3 – 6.

C. Ghnatios & **G.-P. Zéhil** (2019), "Estimation of power-law rheological parameters for non Newtonian fluids using the vane test," 4^{th} International Conference on Advances in Computational Tools for Engineering Applications (ACTEA'19), Lebanon, July 3 – 5. DOI: 10.1109/ACTEA.2019.8851103.

G.-P. Zéhil (2019), "Efficient modeling of the thermal-cracking of a cylindrical shell encapsulating a cylinder inclusion," 4^{th} International Conference on Advances in Computational Tools for Engineering Applications (ACTEA'19), Lebanon, July 3 – 5. DOI: 10.1109/ACTEA.2019.8851113.

G.-P. Zéhil (2019), "Efficient modeling of the thermal-cracking of a spherical shell encapsulating a round inclusion," 4^{th} International Conference on Energy Engineering and Smart Materials (ICEESM 2019), Dublin, Ireland, June 30 – July 2. DOI: 10.4028/www.scientific.net/MSF.995.214.

G.-P. Zéhil & Daisy Saba (2018), "Exploring XLPE-concrete as a novel sustainable construction material," 3^{rd} International Conference on Energy Engineering and Smart Materials (ICEESM 2018), Milan, Italy, June 22 – 24, p. 030005-1 – 5. DOI: 10.1063/1.505110.

C. Ghnatios, **G.-P. Zéhil** (2017), "3D modeling of the vane test on a power-law cement paste by means of the proper generalized decomposition," 14^{th} International Conference on Computational Plasticity. Fundamentals and Applications – COMPLAS XIV, E. Onate, D.R.J. Owen, D. Peric & M. Chiumenti (Eds).
Paper in conference proceedings: http://congress.cimne.com/complas2017/frontal/default.asp.

G.-P. Zéhil (2016), "Semi-analytical model for the mechanical behavior of a spinning viscoelastic layer under gravity loads," 3^{rd} International Conference on Advances in Computational Tools for Engineering Applications (ACTEA'16), Lebanon, July 13 – 15, p. 125 – 130.
DOI: 10.1109/ACTEA.2016.7560125.

G.-P. Zéhil (2016), "A combined analytical and computational approach to the structural behavior of composite tubes," 3^{rd} International Conference on Advances in Computational Tools for Engineering Applications (ACTEA'16), Lebanon, July 13 – 15, p. 146 – 151.
DOI: 10.1109/ACTEA.2016.7560129.

N. Khoury, Y. Maalouf, S. Ghanimeh, **G.-P. Zéhil** (2016), "Computer-aided measurements of the electrical resistivity fields in concrete mixtures with and without polyethylene terephthalate," 3^{rd} International Conference on Advances in Computational Tools for Engineering Applications (ACTEA'16), Lebanon, July 13 – 15, p. 72 – 76. DOI: 10.1109/ACTEA.2016.7560114.

H.P. Gavin, **G.-P. Zéhil** & P.S. Harvey (2014), "Experimental verification of a rolling isolation system," 10^{th} U.S. National Conference on Earthquake Engineering, Anchorage, Alaska, USA, July 21–25. Paper in conference proceedings: http://www.proceedings.com/24968.html.

G.-P. Zéhil & H.P. Gavin (2013), "New three-dimensional boundary element formulation of a viscoelastic layer of finite thickness applied to the rolling resistance of a rigid sphere," 12^{th} U.S. National Congress on Computational Mechanics, Raleigh, North Carolina, USA, July 22–25.

G.-P. Zéhil & H.P. Gavin (2013), "Unified constitutive modeling of rubber-like materials under diverse loading conditions," 12^{th} U.S. National Congress on Computational Mechanics, Raleigh, North Carolina, USA, July 22–25.

G.-P. Zéhil & H.P. Gavin (2012), "Full three-dimensional model for rolling resistance: hard sphere on viscoelastic foundation of finite thickness," 2012 Joint Conference of the Engineering Mechanics Institute and 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, University of Notre Dame, Indiana, USA, June 17–20.

PRESENTATIONS AND SEMINARS

Notre Dame University - Louaize (NDU), July 14, 2023, "On surrogate modeling in engineering," at the Surrogate and Machine Learning in Engineering Seminar.

Open Map Lebanon – University of Balamand Joint International Conference, November 6, 2020, "Introduction to the Blast Modeling Panel."

Open Map Lebanon – University of Balamand Joint International Conference, November 6, 2020, "Interpreting the progress of the COVID-19 epidemic, in Lebanon."

Notre-Dame de Jamhour, Promo 94, Webinar Series, September 17, 2020, "COVID-19 epidemic progress in Lebanon: A modeling perspective."

Notre Dame University - Louaize (NDU) – UNICEF Lebanon Webinar, August 11, 2020, "Evolution of the COVID-19 Epidemic in Lebanon (vs. World)."

Florida Atlantic University, Boca Raton, Florida, USA, May 13, 2014, "Novel approaches to modeling viscoelastic materials and components; Rolling resistance; Synergistic structural composites."

Notre Dame University – Louaize, Lebanon, April 14, 2014, "Novel approaches to modeling viscoelastic materials and components; Rolling resistance; Synergistic structural composites." (by video conference).

The Catholic University of America, Washington DC, USA, February 19, 2014, "Novel approaches to modeling viscoelastic materials and components; Rolling resistance; Synergistic structural composites."

North Carolina State University, Raleigh, North Carolina, February 6, 2014, "Novel approaches to modeling viscoelastic materials and components; Rolling resistance; Synergistic structural composites."

University of Ottawa, Ottawa, Canada, January 24, 2014, "Novel approaches to modeling viscoelastic materials and components; Rolling resistance; Synergistic structural composites."

Clarkson University, Potsdam, New York, USA, December 9, 2013, "Novel approaches to modeling viscoelastic materials and components; Rolling resistance; Synergistic structural composites."

University of Colorado, Boulder, Colorado, USA, December 2, 2013, "Novel approaches to modeling viscoelastic materials and components; Rolling resistance; Synergistic structural composites."

Lebanese University, Faculty of Engineering II, Ain Saadeh, Lebanon, Januray 21, 2010, "Combining the extradosed post-tensioning technique with the balanced segmental cantilever construction method."

Université Saint-Joseph, Faculty of Engineering, Department of Civil and Environmental Engineering, Mar Roukoz, Lebanon, February 18, 2010, "Exceptional bridge crossing the Trois Bassins ravine on the French Réunion island: design and construction methodology."

Centre des Hautes Etudes de la Construction, Paris, France, February 2, 2008, "Polypropelene fibered concrete tunnel on the RN314 in La Défense: resistance to fire and blasting."

Centre des Hautes Etudes de la Construction, Paris, France, April 4, 2007, "Types of prestressing in bridge construction: a brief review."

UBIFRANCE, the French Agency for International Business Development, Paris, France, November 9, 2006, "Bridge design and construction: update on the French expertise."

COTEBA Engineering, Paris, France, October 27, 2006, "Combining longitudinal and transverse phasing in prestressed concrete bridges."

Licences, Professional Memberships and Certifications

Structural Engineering license, Lebanese Order of Engineers and Architects, ID# 26306.

Member of the American Society of Civil Engineers (ASCE), ID# 10857677.

Member of the ASCE Engineering Mechanics Institute (EMI).

Machine Learning course by Stanford University (on Coursera). Certificate earned on July 17, 2018.

Materials Science course by University of California, Davis (on Coursera). May 24, 2020 certificate.

"Grant Writing in Higher Education" webinar series, delivered by international experts from Florida State University (FSU), under the auspices of the Higher Education Capacity Development (HECD) program, funded by the United States Agency for International Development (USAID). June 17 - July 15, 2021.

SERVICE

Grant proposal reviews for: National Council for Scientific Research in Lebanon (CNRS-L).

Journal and conference paper reviews for: Acta Mechanica (Springer), International Journal of Solids and Structures (Elsevier); Computational Materials Science (Elsevier); Journal of Applied Mechanics (ASME); Journal of Tribology (ASME); International Journal of Applied Mechanics (Elsevier); International Journal of Mechanical Sciences (Elsevier); Journal of Cleaner Production (Elsevier); Tribology International (Elsevier); International Journal of Applied Mechanics (World Scientific); ACTEA (NDU).

Organizing Committee of the 5^{th} International ACTEA'23 Conference *Summer 2023*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Committee member and session Chair.

University Council *Fall 2019 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member.

Personnel Committee of the Department of Civil and Env. Engineering *Spring 2021 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member.

ABET accreditation Output Assessment Committee *Spring 2021 – present*
Department of Civil and Environmental Engineering
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member and Secretary.

Organizing Committee of the 4^{th} International ACTEA'19 Conference *Summer 2019*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Committee member and Chair of the Artificial Intelligence session.

University Research Committee *Fall 2018 – Summer 2019*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member.

Graduate Committee of the Faculty of Engineering *Fall 2015 – Spring 2018*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member and Secretary.

Politecnico Di Torino Student Exchange Program Selection Committee *Fall 2018*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member.

Ad hoc IT Committee of the Faculty of Engineering *Spring 2015 – Spring 2017*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member and Chair.

Graduate Committee of the Department of Civil and Env. Engineering *Fall 2017 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member and Secretary.

Graduate Committee of the Department of Civil and Env. Engineering *Spring 2015*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member and Secretary.

Curriculum Committee of the Department of Civil and Env. Engineering *Fall 2014 – present*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member.

Strategic Plan Committee *Spring 2015 – Spring 2017*
Department of Civil and Env. Engineering
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member.

Organizing Committee of the 3^{rd} International ACTEA'16 Conference *Summer 2016*
Notre Dame University (NDU), Zouk Mosbeh, Lebanon
Member of the Finance subcommittee.

Computer Skills

Computer Languages: C, C++, HTML, JavaScript, Python, VBA.

Computer Programs: Matlab, Mathematica, Maple, Abaqus, Ansys, Robot Structural Analysis, SAP, LaTeX, Microsoft Office Suite, Microsoft Project, Primavera, OpenOffice Suite, AutoCad, IPE, Inkscape.

French Structural and Finite Element Programs: ST1, PCP, CDS, OMC, OM3, NEOP, Pylostab, RDM.

Links

- Personal website
- Google Scholar
- ORCID 0000-0003-4030-8352
- SCOPUS ID: 55369895100
- WOS ResearcherID: P-5501-2019
- ResearchGate profile
- LinkedIn profile
