# Nadim Zgheib nadim.zgheib@lau.edu.lb

RESEARCH INTERESTS		
Thermal sciences, experimental and computational fluid d geophysical and multi-phase flows, mathematical modellin and instabilities.	ynamics, subaqueous ng, interfacial mixing	
CONTRACTS AND GRANTS		
Subcontract University of Florida	2020	
Investigating strata in two-way coupled, turbulent bed-flo	w simulations	
• <b>CO-PI</b> ExxonMobil grant	2016-2018	
Turbulence-informed models for shallow water simulation currents	as of turbidity	
EDUCATION AND POSTGRADUATE EXPERIENCE		
Assistant Professor	2018 - present	
Lebanese American University, Byblos, LEBANON		
Consultant faculty	2018 - present	
University of Florida, Gainesville, FL, USA	Ĩ	
• Lecturer	2017	
University of Florida, Gainesville, FL, USA		
Post-Doctoral Associate	2015 - 2017	
University of Florida, Gainesville, FL, USA		
Research duties. Exploring the mechanisms of deposition, bed load		
transport and resuspension to explain bed formation and su	tratigraphy.	
• Joint PhD. in Mechanical Engineering	2015	
University of Florida, Gainesville, FL, USA		
Institut de Mécanique des Fluides de Toulouse, Toulouse, France		
Dissertation topic: "Gravity currents from non-axisymmetric releases"		
SKILLS		
• Programming (mostly in Fortran) and running very large DNS		
• Experimental image processing		

- Experimental image procMathematical modelling
- Excellent academic writing skills with numerous high quality peer-reviewed publications
- Excellent communication and presentation skills

## COURSES TAUGHT

- Computational fluid dynamics
- Introduction to numerical methods of engineering analysis
- Fluid mechanics
- Geology for petroleum engineers
- Transport processes through porous media
- Fundamentals of reservoir engineering
- Engineering analysis I
- Kinematics & Dynamics of Linkages

	AWARDS AND PRIZES	
•	Accepted to the <b>DIES ProGRANT</b> Lebanon-Jordan seminar The aim of DIES ProGRANT is to train younger researchers in developing a promising proposal for international research funding.	2019
•	Recipient of the <b>Erasmus+ mobility</b> Erasmus+ is the EU's program to support education, training, youth and sport in Europe.	2018
•	Recipient of the <b>Best Dissertation Award</b> The award is given to the best dissertation in the Mechanical & Aerospace Engineering Department division of thermal sciences and fluid dynamics at University of Florida	2015
•	Recipient of the <u>Léopold Escande Award</u> The award is given to a maximum of 15% of dissertations at the Institut National Polytechnique de Toulouse (INPT) across all disciplines	2015
•	Recipient of the <u>Graduate Student Research Day Poster Award</u> Graduate Student Research Day is an annual event at the University of Florida featuring research from graduate students in all disciplines. It features posters from hundreds of students, panel discussion, and professional development workshops.	2013
•	Recipient of the <u>Chateaubriand Fellowship Award</u> This highly competitive fellowship is offered by the French Embassy in the US to PhD students wishing to conduct part of their research at French Laboratories	2011
•	Recipient of the <u>Graduate School Fellowship (GSF) Award</u> The GSF is the most prestigious graduate student award provided by the Graduate School at the University of Florida.	2010

### PUBLICATIONS

# 1. Refereed journal articles

•	Zgheib N., & Balachandar S., On the role of sidewalls in the transition from straight to sinuous bedforms, <i>Geophysical Research Letters</i> , 10.1029/2019GL084098	t 2019
•	Zgheib N., & Balachandar S., Linear stability analysis of subaqueous bedform using direct numerical simulations, <i>Theor. Comput. Fluid Dyn</i> <b>33</b> (2), 161-180	s 2019
•	Zgheib N., Fedele J., Hoyal D., Perillo M. & Balachandar S., Direct numerica simulation of transverse ripples: 1. Pattern initiation and bedform interactions, <i>J Geophysical Research: Earth Surface</i> , <b>123</b> .	l 2018
•	Zgheib N., Fedele J., Hoyal D., Perillo M. & Balachandar S., Direct numerica simulation of transverse ripples: 2. Flow dynamics, self-similarity, and effect on neighbouring structures, <i>J. Geophysical. Research: Earth Surface</i> , <b>123</b> .	l f 2018
•	Zgheib N., Bonometti T. & Balachandar S., Suspension-driven gravity surges of horizontal surfaces: effect of the initial shape, <i>Comput. Fluids</i> , <b>158</b> , 84-95	n 2017
•	Zhu S.J., Zgheib N., Balachandar S. & Ooi A., Front dynamics of elliptical gravity currents on a uniform slope, <i>Phys. Review Fluids</i> <b>2</b> (6), 064801	y 2017
•	Zgheib N., Ooi A. & Balachandar S., Front dynamics and entrainment of finit circular gravity currents on an unbounded uniform slope, <i>J. Fluid Mech.</i> , <b>801</b> , 322 352	e - 2016
•	Zgheib N., Bonometti T. & Balachandar S., Dynamics of non-circular finite release gravity currents, <i>J. Fluid Mech.</i> , <b>783</b> , 344-378	e 2015
•	Zgheib N., Bonometti T. & Balachandar S., Propagation and deposition of non circular finite release particle-laden currents, <i>Phys. Fluids</i> , <b>27</b> (8), 086604	2015
•	Zgheib N., Bonometti T. & Balachandar S., Direct numerical simulations o cylindrical particle-laden gravity currents, <i>Comput. Fluids</i> , <b>123</b> , 23-31	f 2015

Zgheib N., Bonometti T. & Balachandar S., Long-lasting effect of initial configuration in gravitational spreading of material fronts, *Theor. Comput. Fluid Dyn.*, 28, 521-529
2014

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# 2. Conference papers and presentations

•	Balachandar S., Zwick D., Moore C., Yang Y., Zgheib N., Guan L., & Salinas J Euler-Lagrange simulations that capture fully resolved physics for particle-lade geophysical flows, <i>AGU</i>	., n 2019
•	Zgheib N., & Balachandar S., Two-way coupled direct numerical simulations of sinuous-crested bedforms, <i>APS DFD</i>	of 2019
•	Zgheib N., Fedele J., Hoyal D. &, Perillo M., Balachandar S., Bedform dynamic from coupled bed-flow direct numerical simulations, <i>The Fifth International</i> <i>Francophone Congress of Advanced Mechanics (CIFMA)</i>	es al 2019
•	Shringarpure M., Fedele J., Zgheib N., Balachandar S., Hoyal D., Perillo M Kumar, A. Vishnampet R. & Sun H., Numerical investigation of bedforms b turbidity currents (EP43C-1891), <i>EFMC</i>	, y 2018
•	Balachandar S., Zgheib N., Fedele J., Hoyal D. &, Perillo M., Pattern initiation bedform interactions, and self-similarity of transverse ripples using direc numerical simulations, <i>Int. Symp. on Environmental Hydraulics</i>	n, et 2018
•	Zgheib N., Fedele J., Hoyal D., Perillo M. & Balachandar S., Pattern formation under turbulent flows from direct numerical simulations (EP43C-1891), <i>AGU</i>	n 2017
•	Zgheib N., Fedele J., Hoyal D., Perillo M. & Balachandar S., Direct numerica simulations of fluvial bedforms under turbulent flow, <i>APS DFD</i>	al 2017
•	Bonometti, T., Zgheib, N. & Balachandar S., Compositional/turbidity currents of non-circular horizontal cross-section: a summary of some recent result. <i>IUTAM/AMERIMECH Symposium – UCSB</i>	of s, 2017
•	Zgheib, N., Bonometti, T. & Balachandar S., Suspension-driven gravity surges of horizontal surfaces: effect of the initial shape, <i>APS DFD</i>	n 2016
•	Zhu, S., Zgheib, N., Balachandar, S. & Ooi, A., Front dynamics of elliptical gravit currents on a uniform slope, <i>Australasian Heat &amp; Mass Transfer Conference</i>	y 2016
•	Ooi, A., Zgheib, N. & Balachandar, S., Direct Numerical Simulation of Three Dimensional Gravity Current on a Uniform Slope, <i>International Conference of Fluid Mechanics</i>	e- n 2015
•	Ooi, A., Zgheib, N. & Balachandar, S., Numerical simulations of a 3d gravit current moving down a uniform slope, <i>APS DFD Gallery of fluid motion</i>	y 2015

- Bonometti, T., Zgheib, N. & Balachandar, S., Self-similar behavior of non-planar non-circular gravity currents, *APS DFD* 2015
- Ooi, A., Zhu, S., Zgheib, N. & Balachandar, S., Computational study of the formation and evolution of a three-dimensional gravity current, *APS DFD* 2015
- Zgheib, N., Bonometti, T. & Balachandar S., Spreading of non-planar nonaxisymmetric gravity and turbidity currents, *APS DFD* 2014
- Zgheib, N., Bonometti, T. & Balachandar, S., Dynamics of non-circular gravity currents, *APS DFD* 2013
- Zgheib, N., Bonometti, T. & Balachandar, S., Asymmetric spreading in gravity currents, *APS DFD* 2012
- Zgheib, N. & Majdalani, J., Axial waves in simulated rocket motors, AIAA JPC 2010

#### **INVOLVEMENT & LEADERSHIP**

Chair of MSE Program Steering Committee	2019
• <b>Member</b> of SOE ad-hoc committee on extra-curricular activities	2018 - 2019
• Student advisor school of engineering	2018 - 2019
• Supervisor final year project	2018 - 2019
• Coordinator, UF departmental fluid mechanics group meetings	2016 - 2017
• Science fair judge Alachua Science & Engineering Fair	2012 - 2013
• Vice president, student government association (UTSI)	2008 - 2010
• Resident assistant, student housing (UTSI)	2008 - 2010
• President, Recreational club (UTSI)	2008 - 2010
• Professional basketball player, Division 1 Lebanese league	2001 - 2007
• Student body representative Notre Dame University	2007

#### LANGUAGES

English, French, Arabic