Curriculum Vitae

PERSONAL INFORMATION

Full Name:	Dimitrios G. Patsatzis		
Address:	Via Campello sul Clittuno 20, Roma 00181, Italy		
e-mail:	d.patsatzis@ssmeridionale.it, patsatzisdim@gmail.com		
Google Scholar:	https://scholar.google.com/citations?user=I9NDEfcAAAAJ		
GitHub:	https://github.com/patsatzisdim	Skype ID:	patsatzisdim
Date of Birth:	September 12th, 1991	Nationality:	Greek

PROFESSIONAL EXPERIENCE

10/2023 - present — Post-Doctoral Researcher
Modeling Engineering Risk & Complexity, SSM, Napoli, Italy
Project: *Physics-Informed Machine Learning for the Numerical Analysis and Control of Agent-based Models*

04/2023 - 05/2023 — Post-Doctoral Researcher
No Self S.r.l, Napoli, Italy
Project: *Analysis and reduction of numerical simulation models of cell growth*

01/2022 - 12/2022 — Post-Doctoral Researcher
Institute of Sciences and Technologies for Sustainable Energy and Mobility, CNR, Napoli, Italy
Project: *Multiscale computational methods for agent-based dynamical systems*

04/2021 - 11/2021 — Post-Doctoral Researcher
11/2020 - 12/2020 — Chemical Engineering, NTUA, Athens, Greece
Project: *The dynamics of COVID-19 epidemics: predicting its impact, duration and resurgence*

11/2019 - 12/2019 — Post-Doctoral Researcher
Mechanical Engineering, KHALIFA University, Abu Dhabi, UAE
Project of *Research and Innovation Center for CO_2 and H_2*

06/2018 - 12/2018 — Consultant (as a PhD student)
Mechanical Engineering, KAUST, Thuwal, KSA
Project: *Using CSP method in Neurobiology and Brain Metabolism*

07/2016 - 06/2018 — Researcher
Applied Mathematics and Physical Sciences, NTUA, Athens, Greece
Project: *High Fidelity Computations for Extreme Combustion*

Mobility

05/2018 — Internship, Nuclear and Corpuscular Physics, University of Geneva, Switzerland

08/2017 - 02/2018 — Internship, Mechanical Engineering, KAUST, KSA

Teaching Activities

11/2023 - 12/2023 — Teaching assistant (12 h) of PhD course "*Numerical methods for Data Mining*", MERC, SSM.

10/2016 - 12/2018 — Private tutor to undergraduate and postgraduate students
Subjects: Algebra, Calculus, Numerical Analysis, Differential Equations, Fluid Mechanics

EDUCATION

11/2015 - 09/2019 — *PhD* in Asymptotic Analysis and Computational Biology
National Technical University of Athens (NTUA), Greece

10/2015 - 07/2017 — *MSc* in Computational Fluid Mechanics
School of Chemical Engineering, NTUA, Athens, Greece

09/2009 - 11/2015 — *MMath* in Applied Mathematics
School of Applied Mathematics and Physical Sciences, NTUA, Athens, Greece

RESEARCH GRANTS & SCHOLARSHIPS

10/2023 - 09/2026	PostDoctoral Fellowship for the project "*Physics-Informed Machine Learning for the Numerical Analysis and Control of Agent-based Models*" funded by Scuola Superiore Meridionale
02/2017 - 01/2019	PhD Scholarship, "*Education and Life Long Learning*" operational programme Co-funded by Greek State Scholarship Foundation (SSF) and European Social Fund (ESF)
07/2018 - 12/2018	Research Grant of the project "*Using CSP in Neurobiology and Brain Metabolism*" External consultant funded by KAUST, Thuwal, KSA
10/2016 - 09/2018	PhD Schoolarship funded by Eugenides Foundation (selected 1st in 2016 call)

JOURNAL PUBLICATIONS

[1] "*A physics-informed neural network method for the approximation of slow invariant manifolds for the general class of stiff systems of ODEs*", D.G. Patsatzis, L. Russo, C. Siettos, **SIAM Journal of Applied Dynamical Systems**, accepted

[2] "*Learning the Latent Dynamics of Fluid flows from High-Fidelity Numerical Simulations using Parsimonious Diffusion Maps*", A. Della Pia, D.G. Patsatzis, L. Russo, C. Siettos, **Physics of Fluids**, 36(10), 2024

[3] "*Slow Invariant Manifolds of Singularly Perturbed Systems via Physiscs-Informed Machine Learning*", D.G. Patsatzis, G. Fabiani, L. Russo, C. Siettos, **SIAM Journal of Scientific Computing**, 46(4), C297-C322, 2024

[4] "*Algorithmic criteria for validity of QSSA/PEA models: the Michaelis-Menten reduced models*", D.G. Patsatzis, D.A. Goussis, **Journal of Mathematical Biology**, 87(2):1-43, 2023.

[5] "*Data-driven Control of Agent-based Models: an Equation/Variable-free Machine Learning Approach*", D.G. Patsatzis, L. Russo, I.G. Kevrekidis, C. Siettos, **Journal of Computational Physics**, 478: 111953, 2023.

[6] "*Modelling Coxiella burnetii within a UK dairy herd: understanding the interconnected relationship between the parturition cycle and environment contamination*", D.G. Patsatzis, N. Wheelhouse, Ef.-Al. Tingas, **MDPI Veterinary Sciences**, 9(10):522, 2022.

[7] "*Algorithmic multiscale analysis for the FcRn mediated regulation of antibody PK in human*", D.G. Patsatzis, S. Wu, D.K. Shah, D.A. Goussis, **Scientific Reports**, 12(1):1-21, 2022.

[8] "*Algorithmic asymptotic analysis: extending the arsenal of cancer immunology modeling*", D.G. Patsatzis, **Journal of Theoretical Biology**, 534:110975, 2021.

[9] "*NH3 vs. CH4 autoignition: A comparison of chemical dynamics*", D.M. Manias, D.G. Patsatzis, D.C. Kyritsis, D.A. Goussis, **Combustion Theory and Modelling**, 25(6): 1110-1131, 2021.

[10] "*Computational singular perturbation analysis of brain lactate metabolism*", D.G. Patsatzis, Ef.-Al. Tingas, D.A. Goussis, S.M. Sarathy, **PLOS ONE**, 14(12):e0226094, 2019.

[11] "*A new Michaelis-Menten equation valid everywhere multi-scale dynamics prevails*", D.G. Patsatzis, D.A. Goussis, **Mathematical Biosciences**, 315:108220, 2019.

[12] "*Asymptotic analysis of a target mediated drug disposition model: algorithmic and traditional approaches*", D.G. Patsatzis, D.T. Maris, D.A. Goussis, **Bulletin of Mathematical Biology**, 78:1121-1161, 2016.

pre-prints "*GoRINNs: Godunov-Riemann Informed Neural Networks for Learning Hyperbolic Conservation Laws*", D.G. Patsatzis, M. di Bernardo, L. Russo, C. Siettos,*arXiv:2410.22193*, 2024.

"*Time scale dynamics of COVID-19 pandemic waves: the case of Greece*", D.M. Manias, D.G. Patsatzis, D.G. Goussis *arXiv:2312.07260*, 2023.

"*On the relation of the COVID-19 reproduction number to the explosive timescales: the case of Italy*", D.G. Patsatzis, *arXiv:2101.06101*, 2021.

INVITED TALKS

1. CRUNCH seminar, Brown University, USA, 10 May 2024
2. KAUST Research Workshop on Innovative Technologies, KAUST, KSA, 9-11 April 2018
3. Clean Combustion Research Center seminar, KAUST, KSA, 16 February 2018
4. 26th PAGE meeting, Workshop held by "Athena" Research & Innovation Center, Budapest, Hungary, 6-9 June 2017

CONFERENCES/MEETINGS

[C1] The 4th Conference of Young Applied Mathematicians (YAMC), Oral pres., 16–20 Sep, Rome, Italy, 2024

[C2] The EQUADIFF Conference 2024, Oral pres., 10–14 Jun, Karlstad, Sweden, 2024

[C3] SIAM Conference on Uncertainty Quantification (UQ24), Oral pres., 27-1 Mar, Trieste, Italy, 2024

[C4] Dynamic Days Europe 2023, Oral pres., 3-8 Sep, Napoli, Italy, 2023

[C5-C6] Numerical Computations: Theory and Algorithms (NUMTA), Oral pres. by Prof. C. Siettos and myself, 14-20 Jun, Calabria, Italy, 2023.

[C7] 2022 Conference in Nonlinear Science and Complexity, Oral pres., Online conference, 26-29 Sep, Thessaloniki, Greece, 2022.

[C8] Second Workshop in Optimal Transport and Uncertainty, Oral pres., 6-7 Sep, Napoli, Italy, 2022.

[C9] Epidemics^8-8th International Conference of Infectious Disease Dynamics, Poster pres., 30-3 Dec, Virtual, 2021.

[C10-C11] Society of Mathematical Biology Annual Meeting 2021, Oral and Poster pres., 13-17 Jun, Virtual, 2021.

[C12] XV European Meeting on Glial Cells in Health and Disease, Oral pres. by Prof. R. B. Jolivet, 7-10 Jul, Marseille, France, 2021.

[C13] UAE Public Health Conference - COVID-19 Response, Oral pres. by Prof. D. A. Goussis, 25-26 Feb, Abu Dhabi, UAE, 2021

[C14] 12th European Conference on Mathematical and Theoretical Biology, Oral pres. by Prof. D. A. Goussis, 31-4 Sep, Heidelberg, Germany, 2020

[C15] 1st International Health Engineering Innovation Center (HEIC) Workshop, Poster pres., 25-26 Nov, Abu Dhabi, UAE, 2019

[C16] 10th Conference of Dynamical Systems Applied to Biology and Natural Sciences (DSABNS) 2019, Poster pres., 3-6 Feb, Napoli, Italy, 2019

[C17] Mathematics in (bio)Chemical Kinetics and Engineering-2018, Oral pres., 7-9 Nov, Ghent, Belgium, 2018

[C18] 25th Summer School-Conference on Dynamical Systems and Complexity, Oral pres., 9-17 Jul, Athens, Greece, 2018

[C19] 11th European Conference on Mathematical and Theoretical Biology, Oral pres. by Prof. D. A. Goussis, 23-27 Jul, Lisbon, Portugal, 2018

[C20] International Conference of Brain Energy Metabolism, Poster pres., 7-10 Mar, Valdivia, Chile, 2018

[C21-C22] 26th PAGE meeting, Poster pres. by Dr. D. T. Maris and myself, 6-9 Jun, Budapest, Hungary, 2017

[C23] 2nd International Congress of Greek Local Chapter of Controlled Release Society, Poster pres., 22-24 Jun, Aegli Zappiou, Greece, 2016

[C24] Dynamic Days Europe 2016, Oral pres., 6-10 Jun, Corfu, Greece, 2016

COMMUNITY SERVICE

2025 Local organizer of the 16th Dynamical Systems Applied in Biology and Natural Sciences (DSABNS 2025) conference, 20-25 Jan, Napoli, Italy, 2025

2024 External reviewer of Journal of Pharmacokinetics and Pharmacodynamics

2023 Organizer of the Mini-Symposium "Physics-Informed Machine Learning for the solution of forward and inverse problems", in Dynamic Days Europe 2023, 3-8 Sep, Napoli, Italy, 2023

2023 External reviewer of Scientific Reports

2022 Organizer of the Mini-Simposium "Multiscale modelling and numerical analysis of complex and large scale dynamical systems", Nonlinear Science and Complexity conference, 26-29 Sep, Thessaloniki, Greece, 2022

2022 External reviewer of Journal of Theoretical Biology

2020 Member of Society of Mathematical Biology (SMB)

AWARDS/PRIZES

2019 Best poster presentation in DSABNS 2019, 3-6 Feb, Napoli, Italy

2017 *LIMMAT STIFTUNG* prize, 3rd place in MSc: "*Computational Mechanics*", NTUA, Athens, Greece

2016 *Thomaidio Prize* for exceptional journal publications, NTUA, Athens, Greece

2009 High School Greek Team Selection in *Chemistry Olympiad*, Cambridge, UK

CONTINUING PROFESSIONAL DEVELOPMENT

10 Sep 2022	AI, Machine Learning and Deep Learning course by MATLAB Inc.
28 Dec 2020	Machine Learning on-line course in Coursera by Stanford University
9-17 Jul 2018	25th Dynamical Systems and Complexity School, Athens, Greece
27-3 Sep 2016	23rd Dynamical Systems and Complexity School, Chalkidiki, Greece
4-7 Jul 2016	COST School on the Analysis of Combustion Mechanisms, Budapest, Hungary

PERSONAL SKILLS

Languages	Greek (native), English (advanced), Italian (beginner)
Computer Skills	Operating systems: Windows, Linux/Unix, Mac OS
	Programming Languages: Fortran (77/90/95/modern), MATLAB, Python, NetLogo, Bash
	Software: Mathematica, COPASI, Matcont, Scigma, gnuplot, Xmgrace, Inkscape, LaTeX, MS Office, Git