Ioannis Nikiforakis, Ph.D.

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Mechanical engineer with a strong background in combustion engines, wind turbines and energy-efficient buildings. I am experienced in applied thermodynamics, computational fluid dynamics, heat transfer analysis, combustion kinetics and fatigue damage. I want to perform novel, meaningful work in a fast-paced environment.

Experience

01/2025 - Present	*Visiting Scholar-Stony Brook University* Modeling internal combustion engines and wind turbines at Stony Brook University's Advanced Combustion and Energy Systems Lab, under Professor Dimitris Assanis.
05/2022-12/2024 & 05/2021-08/2021 & 05/2018-12/2020	*Research Assistant-SUNY Research Foundation* Worked in projects between Stony Brook University, private corporations, and the US Government. I investigated the wake field of an offshore wind farm and the integration of on-site hydrogen production through PEM electrolyzers (Ørsted), with WindFLO. Additionally, I optimized the design of a rotary engine with a pre-chamber (UAV) to improve performance under various loads (LiquidPiston, Inc. and US Air Force), through 3-D CFD model simulations in CONVERGE CFD. I further examined the viability of hybridized solid oxide fuel cells with engines through 0-D, 1-D and 3-D models in ANSYS Chemkin and CONVERGE CFD (ARPA-E's INTEGRATE, Czero, Inc.).
08/2021-05/2022 & 01/2021-05/2021 & 08/2017-05/2018	*Teaching Assistant-Stony Brook University* Assisted in Stony Brook University's Mechanical Engineering Undergraduate Program Courses: MEC 301 Thermodynamics, MEC 305 Heat & Mass Transfer, MEC 325 Manufacturing Processes, MEC 364 Introduction to Fluid Mechanics, MEC 393 Engineering Fluid Mechanics, and MEC 398 Thermodynamics II. I participated in lectures, recitations, lab work, projects, homework, exams and student support.
06/2013-08/2013 & 06/2012-08/2012	*Intern-HARAMIS BROS S.A.* Procured and sized equipment according to the customers' needs, as well as handled installation and repairs at a water-pump company, for two consecutive summers.

Education

Ph.D. in Mechanical Engineering, Stony Brook University, 2024
Dissertation: Understanding the Role of the Internal Combustion Engine for a Hybrid Solid Oxide Fuel Cell Power Generation System

M.Sc. in Sustainable Energy Technology, Delft University of Technology, 2017
Thesis: Determination of Fatigue Assessment of Monopile–Based Offshore Wind Turbines through Fidelity Quantification

Diploma in Mechanical Engineering, National Technical University of Athens (NTUA), 2014
Thesis: Net Zero-Energy Buildings: A Full Review

Skills

Expert in CONVERGE CFD, Tecplot, ANSYS Chemkin, Fluent, SpaceClaim, EnSight, ParaView, Autodesk AutoCAD, Aspen Plus, SolidWorks, Microsoft 365, LaTeX, MATLAB, Python, C/C++, Linux, Bash, Slurm, MPI
Fluent in English, Greek and French | Conversational in Dutch and Chinese (Mandarin)

Publications in Refereed Journals, Conference Proceedings and Awards

3 publications - Institute for Advanced Computational Science Young Writer's Award (2024), Gerondelis Foundation Graduate Study Scholarship (2023) - Ranked 2nd in nationwide exams for NTUA's MEC (2007).