Théo Andrieux

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As an engineering graduate from École Polytechnique with a specialization in Mechanics and Materials from Mines de Paris, I am currently pursuing a PhD at l'X. My research focuses on artificial intelligence applied to metal 3D printing, specifically studying the relationship between laser parameters, microstructure, and mechanical properties. This passion for technological challenges is backed by a solid foundation in numerical simulation, forged through experiences at Aérophile, ArianeGroup, and Withings, as well as a strong adaptability developed during a six-month international experience at the 2020 World Expo. Enthusiastic, flexible, and equipped with strong interpersonal skills, I am dedicated to combining scientific rigor with team spirit to drive innovation forward.

Education

Oct 2025 – Oct 2028

Ph.D. in Solid Mechanics. École Polytechnique, Solid Mechanics Laboratory (LMS), Palaiseau, France.
Thesis: Rapid identification of laser processing-microstructure-properties relationship: an experiment-machine learning synergistic approach. Supervisors: Manas V. Upadhyay and Daniel Weisz-Patrault.

Sept 2024 – June 2026

Engineering Degree, Mechanics and Materials. MINES Paris - PSL.
Mechanics, materials science. (Mécamat track).

Sept 2021 – June 2025

Engineering Degree. École Polytechnique, Palaiseau. MSc in Engineering Sciences, with a specialization in Mechanics. (Cycle Ingénieur polytechnicien)

Sept 2019 – June 2021

Preparatory Classes (CPGE). Lycée Jules Ferry, Versailles.
PT* track (Physics, Technology, Engineering Sciences).

Professional Experience

Sept 2026 – present

Teaching Monitor, Department of Mechanics. École Polytechnique (doctoral teaching assignment).
Mechanics Lab (PHY203): supervising lab sessions and grading students' written lab reports against an official marking grid.
Continuum Mechanics (MEC430): tutorials.

Mar 2025 – Aug 2025

Mechanical Development Engineer Intern. Withings (6 months).
Experimental and numerical evaluation of polymers' mechanical response to water absorption and temperature variations.

Sept 2022 – June 2025

Oral Examiner (Colleur) in Preparatory Classes. Lycée Lakanal (3 years).
Teaching and evaluating students on Engineering Sciences (*Sciences de l'Ingénieur*) for PSI and PCSI tracks.

Professional Experience (continued)

Mar 2024 – Aug 2024 — **Structural Mechanics and Dynamics Engineering Intern.** ArianeGroup. Developed a dynamic characterization software for the Ariane 6 launcher (MATLAB, PERMAS). Reduced vibrational models using transfer function coupling.

June 2023 – Aug 2023 — **Numerical Simulations Intern.** Aerophile SAS.
Aerodynamic modeling of a tethered balloon (fluid-structure interaction).
Open-space airflow modeling applied to fine particulate pollution, utilizing ANSYS FLUENT.

Oct 2021 – Mar 2022 — **Protocol Team Assistant Intern.** COFREX, Dubai World Expo / Expo 2020.
Planning, operations, and logistical management for the France Pavilion.
Interfaced with and welcomed VIP delegations and dignitaries.

Publications

2026 — **Efficient spectral Galerkin framework for nonlinear transient heat transfer in finite domains.**
T. Andrieux, A. Ntinos, M. V. Upadhyay. Preprint, arXiv:2609.22268, 2026.
Code: `github.com/theo-andrieux/spectral_galerkin_heat`

Skills & Expertise

Languages	English (Fluent, Linguaskill C1, Score 180+), German (Fluent), Arabic (Beginner).
CAD	CATIA, Fusion 360 (Advanced proficiency).
Simulation	MATLAB, ANSYS Fluent, PERMAS.
Programming	Python, Java.
Manufacturing	3D Printing, Machining, Rapid prototyping.

Projects & Achievements

Experimental & Technical Projects

2023 — **Mechanics Lead of the Chassis Team, IP Paris Racing Team.**
CAD and structural simulation for the chassis of a Formula Student race car.

2022 — **Technical Lead for X-Rocket (Aerospace Project).** Mechanical design and manufacturing of an experimental rocket. (CNES C'Space launch campaign, launched in July 2023).

2020 — **Student Project: Prototyping.** Optimization of a piezoelectric energy harvesting system with frequency adaptation, mandatory project of preparatory class (TIPE).

Awards & Achievements

2019 — **Innovation Award,** Engineering Sciences Olympiads (Paris). Designed an AI for transcribing piano music into sheet music.

Third Prize, Engineering Sciences Olympiads. Designed and manufactured a bionic robotic arm to assist people with disabilities.