# NINA DELETTE

## DOCTORAL RESEARCHER

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## EDUCATION

| UNIVERSITY OF RENNES | RENNES, FRANCE |
|---|---|
| PHD IN ENGINEERING SCIENCES | 2023 – 2026 |

- Research topic: Digital twin methods for structural health monitoring of wind turbines
- Supervisor: Laurent Mevel

| CENTRALE NANTES (Top 10 engineering school in France) | NANTES, FRANCE |
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| DIPLÔME D'INGÉNIEUR – EQUIVALENT TO MSC IN ENGINEERING | 2019 – 2023 |

- Semester abroad at TU Berlin, Germany (Winter 2021)
- Major: Renewable Energies (aerodynamics, structural mechanics, photovoltaics, grid integration, data science)
- Minor: Ocean Engineering (fluid mechanics, numerical and experimental hydrodynamics)
- Extracurricular: Climate Fresk facilitator (climate science workshop)

| LYCÉE DU PARC | LYON, FRANCE |
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| PREPARATORY CLASSES FOR THE GRANDES ÉCOLES | 2017 – 2019 |

- PCSI and PC* (Mathematics, Physics, Chemistry)

## RESEARCH EXPERIENCE

| INRIA RENNES & IFP ENERGIES NOUVELLES | RUEIL-MALMAISON, FRANCE |
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| PHD RESEARCHER – DIGITAL TWIN FOR WIND TURBINE STRUCTURES | Nov.2023 – Present |

- Developed a digital twin framework for wind turbine fault detection
- Explored model updating methods, including Bayesian techniques in rotation
- Conducted Floquet modal analysis of time-periodic rotating systems

| IFREMER | BOULOGNE-SUR-MER, FRANCE |
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| RESEARCH INTERN – EXPERIMENTAL STUDY OF TIDAL TURBINE BEHAVIOR | Apr. – Aug.2021 |

- Conducted towing tank experiments on a tidal turbine using PIV and LDV
- Investigated unsteady blade loading to assess fatigue-relevant hydrodynamic effects

| CEA | GRENOBLE, FRANCE |
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| LABORATORY INTERN – MAGNETIC MATERIALS PREPARATION AND CHARACTERIZATION | July – Aug.2020 |

- Prepared and characterized magnetic material samples using coating, polishing, Hall probe, SEM, and density measurements

# PROFESSIONAL EXPERIENCE

**EDF RENEWABLES**                                            PARIS, FRANCE
OFFSHORE STRUCTURAL ENGINEERING INTERN                    Apr. – Sept. 2023

- Developed an OrcaFlex model of an existing offshore wind turbine
- Assessed the impact of turbulence on structural fatigue

**HIGH SCHOOL MARIE CURIE**                              GRENOBLE, FRANCE
LABORATORY TECHNICIAN                                       Mar. – July 2022

- Prepared and maintained materials and equipment for physics and chemistry practicals, assisted teachers with experimental setups and safety protocols.

# PUBLICATIONS

- N. Delette, E. Denimal Goy, J.-L. Pfister, L. Mevel, R. El Amri & M. Magnier. *Model Updating of Rotating Wind Turbines Using Operational Modal Analysis and Floquet Mode Decomposition*. **In: Proceedings of IOMAC 2025**, Rennes, France (2025)
- M. Magnier, N. Delette, P. Druault, B. Gaurier, G. Germain. *Experimental study of the shear flow effect on tidal turbine blade loading variation*. **Renewable Energy**, 193 (2022), 744–757. https://doi.org/10.1016/j.renene.2022.05.042

# TEACHING EXPERIENCE

**CNAM**                                                      PARIS, FRANCE
TEACHING ASSISTANT – STRUCTURAL VIBRATIONS (MSC LEVEL)          2024 – 2025

- Led practical sessions on structural vibrations, combining experimental setup and numerical analysis.

# CONFERENCES & PRESENTATIONS

- **WESC 2025**, Nantes, France — Oral Presentation: *Bayesian model updating of wind turbines*
- **IOMAC 2025**, Rennes, France – Oral presentation: *Model Updating of Rotating Wind Turbines Using Operational Modal Analysis and Floquet Mode Decomposition*
- **CNRS Summer School "Énergie et Recherche"** (2024), Roscoff, France — Pitch: 3-minute thesis presentation, nominated for best pitch

# SERVICE & LEADERSHIP

- **Treasurer, IFPEN PhD Student Association :** Organized networking, career, and social events to foster community and support professional development.