

Experience

IFPEN - PH.D. STUDENT

- *Topic* : Lattice Boltzmann methods for wind energy applications - modelling wind turbines in an atmospheric boundary layer

Rueil-Malmaison, France

Jun. 2022 - present

Friedrich-Alexander Universität Erlangen-Nürnberg - RESEARCH ASSISTANT

- Software developer at the Chair for System Simulation for the lattice-Boltzmann framework WALBERLA
- European project on aerodynamic flows using the lattice-Boltzmann method
- Supervision of student theses

Erlangen, Germany

Apr. 2021 - Jun. 2022

IFPEN - ENGINEER FOR FLUID MECHANICS

- Implementation of an actuator line model in the software framework WALBERLA for the simulation of wind turbines
- Extension of the turbine application to GPUs and non-uniform grids
- Performance profiling

Rueil-Malmaison, France

Apr. 2020 - Mar. 2021

Friedrich-Alexander Universität Erlangen-Nürnberg - RESEARCH ASSISTANT

- Software developer at the Chair for System Simulation for the lattice-Boltzmann framework WALBERLA
- Wind turbine modelling using the lattice-Boltzmann method
- Supervision of student theses

Erlangen, Germany

Aug. 2019 - Mar. 2020

BMW Group - INTERNSHIP

- Voluntary internship as part of the studies in Mechanical Engineering
- Work in the area of fluid-structure-interaction in the team for 'Simulation Combustion and Charging'

Munich, Germany

Oct. 2016 - Apr. 2017

LK Metallwaren GmbH - INTERNSHIP

- Obligatory internship as part of the studies in Mechanical Engineering
- Work in the areas of control cabinet construction, wastewater engineering, construction of hall heating systems and prefabrication

Schwabach, Germany

Aug. 2015 - Sep. 2015

Kennametal Productions GmbH - INTERNSHIP

- Obligatory internship as part of the studies in Mechanical Engineering
- Work in the areas of practical training, maintenance of operating technology and the manufacturing of ceramic disposable cutting inserts

Ebermannstadt, Germany

Aug. 2013 - Sep. 2013

Education

Friedrich-Alexander Universität Erlangen-Nürnberg - M.Sc. IN COMPUTATIONAL ENGINEERING

- Graduated with distinction
- Technical application field: solid mechanics and dynamics
- Average grade: 1.2*

Erlangen, Germany

Oct. 2017 - Dec. 2019

Friedrich-Alexander Universität Erlangen-Nürnberg - B.Sc. IN MECHANICAL ENGINEERING

- Focus on applied mechanics and numerical methods
- Average grade: 1.4*

Erlangen, Germany

Oct. 2013 - Oct. 2017

Wolfgang-Borchert-Gymnasium - ABITUR (UNIVERSITY ENTRANCE DIPLOMA)

- Average grade: 1.4*

Langenzenn, Germany

Sep. 2004 - Jun. 2012

* 1.0 being the highest, 4.0 the lowest passing grade

Skills

IT	C++, Python, Fortran90, Shell, MPI, OpenMP, CUDA C/C++, CUDA Python, CMake, LaTeX, git, gitlab
CAE software	ANSYS Mechanical, CFX and ICEM, Creo Parametric, Siemens NX, Catia v5, ABAQUS
Languages	German (Native Speaker), English (Proficient User), French (Independent User)

Extracurricular Activity

Friedrich-Alexander Universität Erlangen-Nürnberg - PERSONAL DEVELOPMENT - SOFT SKILL SEMINARS

Erlangen, Germany

- Courses on, among other, leadership, decision making, resilience
- Certificate for tutors at Friedrich-Alexander Universität Erlangen-Nürnberg including courses on rhetoric, didactic, reflection and intercultural sensitisation

Women in High Performance Computing - MEMBER

International

- Community aiming to promote the role and participation of women in the field of high performance computing
- Online platform for communication, dissemination and networking

Jan. 2020 - PRESENT

German Association for Computational Mechanics - MEMBER

Germany

- Non-governmental association to stimulate and promote education, research and practice in computational mechanics
- Affiliated to the International Association for Computational Mechanics (IACM) as a national branch and the European Community on Computational Methods in Applied Sciences (ECCOMAS)

Jun. 2018 - Dec. 2022

Honors & Awards

Oct. 2015 -
Sep. 2016 **Scholarship**, Max Weber-Program for the support of highly-gifted students in the state of Bavaria, Germany

Bavaria, Germany

Jun. 2012 **Honoring for social commitment**, City of Langenzenn, Germany

*Langenzenn,
Germany*

Presentations

ECCOMAS Conference 2024 - PRESENTER

Lisbon, Portugal

- Lattice-Boltzmann methods for the efficient simulation of wind turbines in atmospheric flows

June 2024

Rencontres Inria-LJLL en calcul scientifique - INVITED SPEAKER

Paris, France

- Lattice-Boltzmann methods for wind energy applications

May 2023

TeraTec Forum 2023 - Digital Thematic Mornings - INVITED SPEAKER

Paris, France

- Towards the simulation of large-scale wind farms using the lattice-Boltzmann method

Apr. 2023

TORQUE Conference 2022 - POSTER PRESENTER

Delft, Netherlands

- Evaluation of a lattice Boltzmann-based wind-turbine actuator line model against a Navier-Stokes approach

Jun. 2022

Wind Energy Science Conference 2021 - PRESENTER

Online

- A Holistic CPU/GPU Approach for the Actuator Line Model in Lattice Boltzmann Simulations

May 2021

91st Annual Meeting of the International Association of Applied Mathematics and Mechanics - PRESENTER

Online

- Lattice Boltzmann Methods for Turbulent Flows around Wind Turbines using the Actuator Line Model

Mar. 2021

The First International Workshop on Lattice Boltzmann for Wind Energy - PRESENTER

Online

- "The waLberla framework"
- "A holistic CPU/GPU Approach for the Simulation of Wind Turbines using the Actuator Line Model"

Feb. 2021

Publications

WALBERLA-WIND: a lattice-Boltzmann-based high-performance flow solver for wind energy applications - CONCURRENCY AND COMPUTATION: PRACTICE AND EXPERIENCE

- Helen Schottenhamml, Ani Anciaux-Sedrakian, Frédéric Blondel, Harald Köstler, Ulrich Rüde

2024

Evaluation of a lattice Boltzmann-based wind-turbine actuator line model against a Navier-Stokes approach - JOURNAL OF PHYSICS: CONFERENCE SERIES

- Helen Schottenhamml, Ani Anciaux-Sedrakian, Frédéric Blondel, Adria Borrás-Nadal, Pierre-Antoine Joulin, Ulrich Rüde

2022