SARAH FEHÉR

PhD student researching the modelling of dual-fuel combustion by large-eddy simulation

Paris, France
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SKILLS

Computer Skills

Computational Fluid Dynamics (CFD) :
CFD Codes :
Ansys Fluent, Ansys CFX, Yales2
Meshing :
Icem CFD, Ansys Meshing
Post-processing :
CFD Post, Paraview, Ensight

1D Modelling :
Simulink, Amesim

Programming :
C, C++, Java, VBA, MatLab, Python, Fortran, Bash/Unix, Perl

CAD :
Autodesk Inventor, Solidworks, DesignModeler, SpaceClaim

Documentation: Microsoft Office, Latex

Languages

German :
Native Speaker

French :
Bilingual (C1, TFI 980/990)

English :
Fluent (C1, TOEIC 990/990)

Hungarian :
Intermediate (Semester in Hungary in 2010)

INTERESTS

Student associations – Head of International Relations Department of Ecole Centrale de Nantes' student association

Humanitarian – Teaching classes for primary school children in Ghana (Stay in Ghana in 2013)

Languages – Learning Modern Standard Arabic

Sport – Running, hiking

EDUCATION

2019 – 2020 | **Master in Renewable Energy Engineering (Double Degree)**
RWTH Aachen University | *Aachen, Germany*
- Renewable Energy Production technologies (solar, wind, bio mass, geothermal, hydrogen)
- Management of energy systems and integration of renewable energy

2015 – 2020 | **General Engineering Diploma (Double Degree)**
École Centrale de Nantes | *Nantes, France*
- General Engineering : Mathematics, mechanics, energetics, materials
- Specialization Propulsion &Transport : Energetics of propulsion systems (automotive, aeronautic, railway, maritime, space)

2013 – 2019 | **Bachelor in Business Administration and Mechanical Engineering**
RWTH Aachen University | *Aachen, Germany*
- Mechanical Engineering and machine design
- Finance, business administration and economics
- Specialization Energetics : Energy production and management of energy systems

PROFESSIONAL EXPERIENCE

May 2020 – Present | **PhD – Modelling of Dual-Fual Combustion by Large-Eddy Simulation**
IFP Energies Nouvelles & University of Paris-Saclay | *Paris, France*
- Development of LES models for auto-ignition to premixed flame propagation transition in highly stratified mixtures present in dual-fuel combustion engines
- Application of the developed models for dual-fuel engine simulations in industrial configurations in collaboration with Caterpillar, Mossville, IL, USA

Apr. 2020 – Dec. 2020 | **Master Thesis - Consistent uncertainty assessment in life cycle optimization models**
Chair of Technical Thermodynamics, RWTH Aachen | *Aachen, Germany*
- Integration of a stochastic uncertainty assessment method based on Monte Carlo Simulation into a life cycle optimization model of the chemical industry using Matlab
- Analysis of the uncertainties' influence on climate change mitigation potentials

Oct. 2019 – Mar. 2020 | **Internship – Numerical Simulation of two-phase fuel sprays**
Safran Aircraft Engines | *Villaroche, France*
- Simulation of the turbulent atomization of two-phase fuel sprays using Yales2 (interface transport, adaptive mesh refinement, LES)
- Development and optimization of a 1D injector simulation tool in Python

Jan. 2019 – June 2019 | **Bachelor Thesis - Analysis of the flow in a chamber with a rotating wall using Large Eddy Simulation**
Institute of Power Plant Technology, Steam and Gas Turbines, RWTH Aachen | *Aachen, Germany*
- Evaluation of different turbulence models (RANS, URANS, LES) for the simulation of a confined flow in a chamber with a rotating wall using Ansys CFX

Sept. 2017 – Mar. 2018 | **Internship - Analysis of Marketing and Pricing of Natural Gas**
EDF | *Paris La Défense, France*
- Analysis of natural gas sales results: studies on the gas portfolio and the performance of the emitted offers, calculation of performance indicators
- Synthesis of results: reports and presentations for the B2B market's management
- Animation of the natural gas sales expert network in France

Apr. 2017 – Aug. 2017 | **Internship - Numerical simulations of aerothermal conditions in automobile passenger cabins**
PSA Peugeot Citroën | *Vélizy, France*
- Development of a CFD simulation of the aerothermal conditions in an automobile passenger cockpit for the prediction of fogging using Ansys Fluent