

Curriculum vitae (CV)

PERSONAL INFORMATION

Family name, First name: HOSEINI, Seyedasalar

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Address: CPE-Lyon) & CP2M (UMR 5128 / CPE Lyon-CNRS-Université Lyon 1).

RESEARCH EXPERIENCE

Lecturer (Assistant professor)

01/07/2025–Present

École Supérieure de Chimie Physique Électronique de Lyon (CPE-Lyon) and Le laboratoire de catalyse, polymérisation, procédés et matériaux – CP2M (UMR 5128 / CPE Lyon-CNRS-Université Lyon 1).

- ❖ I am responsible for teaching Fluid Mechanics, Mixing, Heat and Mass Transfer, Ideal Reactors, Mathematics, Programming, and Engineering Tools in the Department of Process Engineering and Biotechnology at CPE-Lyon
- ❖ In terms of research, I work at CP2M. In this laboratory, we focus on surface catalytic reactions and the evaluation of mixing in catalytic porous media. Specifically, we study mixing efficiency in porous domains with different configurations, in the presence of catalysts coated onto these domains. My main contribution involves the numerical aspects of the research, particularly working on the optimization of reactions and mixing in catalytic porous media.

Postdoctoral Researcher

01/03/2023–30/06/2025

Toulouse Biotechnology Institute – Bio and chemical engineering, University of INSA, Toulouse, France

- ❖ Hydrodynamic characterization and particle aggregation in a stirred tank reactor
 - Evaluated hydrodynamics in a stirred tank by comparing IBM-LES simulations with PIV data, with all post-processing conducted using Python
 - Developed a Python-based framework integrating CFD techniques with the compartmental modeling approach (CMA) to analyze scalar and particle mixing dynamics.
 - Designed a Python-based model combining CFD, CMA, and Monte Carlo methods to evaluate particle aggregation processes in a chemical reactor.
 - Analyzed the hydrodynamics of a stirred tank using Stereo PIV measurement techniques.

Postdoctoral Researcher

01/01/2023–28/02/2023

Chemical Engineering Laboratory in Toulouse, INP – the University of Toulouse, Toulouse France

- ❖ PIV-based flow measurements in a stirred tank with various impellers
 - Evaluation of hydrodynamics in a stirred tank with different impellers using 2D2C PIV measurements
 - Utilized DaVis software for image processing and data extraction from PIV measurements

Postdoctoral Researcher

20/03/2022–29/12/2022

Chemical Engineering Laboratory in Toulouse, INP – the University of Toulouse, Toulouse France

- ❖ Foam formation analysis in chemical reactors using a deep learning approach developed in python
 - Developed a method to analyze and measure foam height in a chemical reactor
 - Trained a model to automatically analyze and measure the geometrical characteristics of foam

Graduate Research Trainee (as a part of my PhD)

14/12/2019–14/09/2020

McGill University, Montreal, Quebec, Canada

- ❖ Impeller shape optimization of a stirred tank reactor
 - Applied CFD technique to study the hydrodynamic behavior of a stirred tank reactor
 - Utilized the FSI method to investigate the interaction between fluid and impeller structure
 - Applied an optimization method using Multi-Objective Genetic Algorithm (MOGA) to optimize the impeller shape of a stirred tank.