YI HU

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1022 Chavannes-près-Renens, Suisse

Strength

- Solid background in both mechanics and materials
- Proficient in extensive simulation tools and codes
- Enthusiastic about new technologies and tools
- Capable of analyzing and solving complex problems
- Working experience in multi-cultural teams
- Quickly adapted in working environment

Education

2016–2021	*École Polytechnique Fédérale de Lausanne*, Ph.D. Mechanical Engineering
2014–2016	*Universität Stuttgart*, M.Sc. Simulation Technology, GPA: 1.2/1, excellent with distinction
2009–2014	*Tongji Universtiy*, B.E. Civil Engineering, GPA: 4.38/5
2011–2012	*Hong Kong Polytechnic University*, Exchange Program

Research & Work Experience

11/2016–11/2021 *Ph.D. Thesis: "Precipitation Strengthening in Al-Mg-Si Alloys"*

- Supervisor: Prof. W. A. Curtin
- Alloy strength prediction through multiscale modeling and theories
- Integration of key mechanisms into mesocale coarse-grained simulation
- Detailed strength investigation of experimental random microstructures
- Utilize state-of-art Neural Network Potential to study atomistic mechanisms
- Establish predictive models valuable for material development

06/2018–06/2020 *Teaching Assistant: "Solid Mechanics"*

- Problem set design, tutorial sessions for exercises

09/2017–09/2019 *Research member of MARVEL, National Center of Competence in Research, Switzerland*

- Posters in 2018, 2019, and 2021 of MARVEL Site Visit, Lausanne

02/2016–07/2016 *Master Thesis: "Phase field approaches to topology optimization"*

- Supervisor: Prof. Marc-André Keip
- Optimize material layout appropriate for additive manufacturing
- Various formulations in topology optimization
- Realization of phase-field approaches in open-source code
- Solving 2D/3D multiphysics problems

10/2015–02/2016 *Course Thesis: "Homogenization for multi-field modeling"*

02/2014–06/2014 *Bachelor Thesis: "Damage simulation of concrete tunnel segment lining"*

- Supervisor: Prof. Xiaoying Zhuang

Skills

Programming	Python, C/C++, Matlab, CUDA, OpenACC
Package	PyTorch, Numpy, Pandas, Matplotlib, SQLite
FEM software	Ansys, Abaqus
Open source	LAMMPS, ParaDiS, FEniCS, deal.II
Graphic modeling	AutoCAD, ParaView, Gmsh, OVITO
Office	MS Office, LaTeX, Inkscape
Other	Linux, High Performance Computing (USI-CSCS certificate)
Language	Chinese (mother tongue) English (working proficiency)
	German (TestDaF 19/20) French B1
Expertise	Mechanics, Materials, Machine Learning, Optimization, Numerical Methods

Paper & Conference

- Yi Hu, W. A. Curtin. "Near-chemically-accurate modeling of precipitate strengthening: case study of Al-6xxx alloys", (submitted to Acta Materialia)
- Yi Hu, W. A. Curtin. "Modeling peak-aged precipitate strengthening in Al–Mg–Si alloys", Journal of the Mechanics and Physics of Solids, 2021.
- Yi Hu. "Modeling Orowan strengthening in Al-Mg-Si alloys", Material Science and Engineering Congress, Darmstadt (Germany) , 2020
- Yi Hu, B. A. Szajewski, D. Rodney, and W. A. Curtin. "Atomistic dislocation core energies and calibration of Non-singular Discrete Dislocation Dynamics." Modeling and Simulation in Materials Science and Engineering, 2019
- Yi Hu. "Atomistic dislocation core energies and the calibration to Discrete Dislocation Dynamics", 13th World Congress on Computational Mechanics, New York City, 2018
- Yi Hu, X. Ren. "XFEM Based Discontinuity Simulation for Saturated Soil", 6th International Conference on Nonlinear Mechanics, Shanghai, 2013

Reference

Prof. W. A. Curtin *Laboratory for Multiscale Mechanics Modeling at EPFL*, william.curtin@epfl.ch
Dr. Predrag Andric *AB SKF*, predrag.andric@skf.com
Prof. David Rodney *University of Lyon*, david.rodney@univ-lyon1.fr