Elham **YOUSEFIMIAB** Researcher at <u>SUIMC Center</u>

☑ www.elhamyousefimiab.com/

Ø yousefimiab@sabanciuniv.edu

in linkedin.com/in/elham-yousefi-miab/

• +90-552-475-1370

Sabanci University, Istanbul, Turkey

EDUCATION

2020/9-2023/9	/9 M.Sc. in Mechatronics Engineering, SABANCI UNIVERSITY, Istanbul, Turkey CGPA: 3.91/4.00	
	Thesis : Thermomechanical Process Modelling and Experimental Validation for Additive Manufacturing of Nanoparticle Dispersed Inconel 718 Alloys	
	ALSO: Material Toughening with Stop-holes Using Fully Coupled Thermomechanical peridynamic Model Supervisor: Assoc. Prof. Adnan Kefal	
	selected courses : Advanced topics in finite element analysis (A), Introduction to the finite element method (A), Topology optimization (A ⁻), Mechanics of solids(A)	
2014/9-2017/2	M.Sc. in Mechanical Engineering, Energy conversion, UNIVERSITY OF TABRIZ, Tabriz, Iran CGPA : 17.57/20	
	Thesis : Feasibility of Using Nanofluids in Heaters of Gas Pressure Reduction Stations Supervisor : Assoc. Prof. Sima Baheri Islami	
2009/9-2013/9	B.Sc. in Mechanical Engineering, Thermo-fluid, UNIVERSITY OF TABRIZ, Tabriz, Iran Thesis : Numerical Simulation of Natural Convection of Power-law Fluids from Symmetric Objects Supervisor : Assoc. Prof. Sima Baheri Islami	

Q Research Interests

Fracture and failure analysis using peridynamics Additive manufacturing Finite element Thermo-mechanical/ Multi-physics analysis Composite structures

PUBLICATIONS

2023 Understanding the thermal effects on material toughening for plates with stop holes using fully coupled thermomechanical Peridynamic model E. Yousefimiab, A. Kefal, (Ready to be submitted)

2023 Thermomechanical Process Modelling and Simulation for Additive Manufacturing of Nanoparticle Dispersed Inconel 718 Alloys E. Yousefimiab, et al.(Submitted to IJMS)

2022 Feasibility assessment of using nanofluids in shell and tube heat exchanger of gas pressure reducing stations through a new developed OpenFOAM solver E. Yousefimiab, et al. (Published) C Credential

Academic Projects

M.Sc. Thesis Integrated Manufacturing Research and Application Center (SU-IMC), Istanbul, Turkey

Understanding the thermal effects on material toughening for plates with stop holes using fully coupled thermomechanical peridynamic model

- > Developed non local peridynamic model of fully coupled thermomechanical equations
- > Investigated the effect of stop holes and micro-cracks in decreasing the crack propagation speed
- Validated the coupled thermo-mechanical model with FEM C++ code, ANSYS, and peridynamic benchmark problems
- > Investigated the interaction of the propagating macro-crack with micro-cracks and stop-holes
- > Conducted Numerical simulation using C++ programming
- > Used high-performance computational cluster of Sabanci University

	 Thermomechanical process modelling and simulation for additive manufacturing of nanoparticle dispersion strengthened Inconel 718 Alloys > Developed a coupled transient thermo-mechanical FEM model of laser powder bed fusion (L-PBF) process using elastoplastic constitutive law > Implemented 3 material phases, plasticity, path planning, heat source, thermal boundary conditions and temperature and phase dependent properties using subroutines > verified the thermal model Experimentally for a single track three-layer test case > Assessed residual stress variation with respect to different process parameters > Investigated the effect of adding nano-oxide particles on the final residual stress > Simulated the L-PBF process using non-linear FEA Software, MSC Marc > Peformed post processing using GID software
1st M.Sc. Thesis	Done by the support and financial assistance of the East Azerbaijan province gas company
	 Feasibility of using nanofluids in heaters of gas pressure reduction stations Numerical Finite Volume investigation of conjugate Unsteady Turbulent Free convection heat transfer performance and probability of sedimentation of nanoparticles in indirect fired water bath heaters. Developing a new heat transfer solver and Shear Stress Transport Turbulence model, using the open source CFD package, "OpenFOAM" Using high-performance computational cluster of University of Tabriz
Research team	In conjunction with Helmholtz Center Munich and the Ludwig Maximilian University of Munich
project	 Simulation of pulsatile blood flow in realistic patient-specific cerebral aneurysms using Newtonian and non-Newtonian FVM models investigated the unsteady laminar blood flow in realistic patient-specific cerebral aneurysms Conducted numerical simulations using ANSYS Fluent CFD package Generated the computational domain using 3D STL models obtained from the image processing of 3D MRI images
Spring 2022	 Coupled steady state thermo-mechanical FEM analysis of a plate Validated the model with ANSYS results Conducted simulations using C++ Programming
Advanced FEM course project	 FEM simulation of convective heat transfer from a pin fin Conducted simulations using MATLAB programming validated the model using FEA Software, MSC Marc
Advanced FVM course project	 Simulated heat transfer and fluid flow between two parallel plates using FVM method and SIMPLE pressure-velocity coupling algorithm Conducted simulations using FORTRAN Programming validated the model using ANSYS Fluent CFD package
B.Sc. Thesis	 Numerical simulation of natural convection of power-law fluids from symmetric objects > Investigated the effect of properties of power-law fluids in the laminar natural convection of so-called fluids from various objects such as a plane, cylinder and a sphere > Conducted simulations using ANSYS Fluent CFD package

2nd chapter Done by the support and financial assistance of TUBITAK

PROFESSIONAL EXPERIENCES

2020-2023	Research Assistant, Integrated Manufacturing Research And Application Center, Istanbul, Turkey
Fall 2022	Teaching Assistant, Mechanical Systems I, Sabanci University, Istanbul, Turkey
2022-2023	Teaching Assistant, Dynamics, Sabanci University, Istanbul, Turkey
2019-2020	Training course on OpenFOAM, University of Tabriz, Iran

Computer Skills

Programming	C++, MATLAB, FORTRAN
FEA packages	MSC Marc, ANSYS
CFD packages	OpenFOAM, ANSYS FLUENT
CAD	Catia
Meshing packages	Hyper-mesh, GAMBIT, ICEM, Workbench meshing
Other	Corel-Draw, GID, Tecplot, LATEX

2020-2023	Full tuition waiver, housing, and monthly stipend for M.Sc. program by TUBITAK (Scientific and Tech-
	nological Research Council of Turkey), Sabanci University, Turkey
2014-2017	Tuition fee exemption award, M.Sc. program, Iran Ministry of Science, Research and Technology, Iran
2014	Ranked in top 3 % among over 19,500 participants, national entrance exam for Master studies, Iran
2009-2013	Ranked in top 20 % among more than 120 B.Sc. students, (all majors), University of Tabriz, Iran
2009-2013	Tuition fee exemption award, B.Sc. program, Iran Ministry of Science, Research and Technology, Iran
2009	Ranked in top 0.2 % among over 308,000 participants, national entrance exam for B.Sc. studies, Iran

Certificates

- 2022 C++ Basic Structures : Vectors, Pointers, Strings, and Files, Coursera, Online, C Credential
- 2022 C++ Basics : Selection and Iteration, Coursera, Online, 🗹 Credential
- 2019 Training Course on OpenFOAM (as instructor), Issued by University of Tabriz
- 2018 Introduction to OpenFOAM workshop (as instructor), Issued by University of Tabriz

Language Skills

English TOEFL iBT, May 2023 : 110/120, (R : 28/30, L : 27/30, S : 27/30, W : 28/30)

- GRE, December 2019 : total :317, (Q R : 165/170, V R : 152/170, Writing : 3.5/6)
- Native Persian, Azerbaijani

66 References

Dr. Adnan Kefal, Ph.D. Assoc. Professor, Sabanci University

Dr. Eda Aydoğan, Ph.D. Assist. Professor, Middle East Technical University

Dr. Güllü Kızıltaş Şendur, Ph.D. Assoc. Professor, Sabanci University

Dr. Sima Baheri Islami, Ph.D.

Assoc. Professor, (visiting prof. at University of Saskatchewan-Canada)

Email: @ adnankefal@sabanciuniv.edu Web: 🖸 sabanciuniv.edu/ Adnan Kefal

Email: @ aydogane@metu.edu.tr Web: C metu.edu/eda-aydogan

Email: @ gkiziltas@sabanciuniv.edu Web: C sabanciuniv.edu/gkiziltas/

Email : @ baheri@tabrizu.ac.ir Web : ♂ tabrizu.ac.ir/sima-baheri