Dr. POOYA NIKSIAR

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3 Jenkins Ave., Grimsley Hall, Room 109C, Charleston, SC

Updated: February 6, 2025

EDUCATION

Ph.D., Mechanical Engineering

Clemson University, USA — Aug. 2014 - Dec. 2018

Dissertation Title: "Fabrication and Mechanical Properties of Micro-Architectured 3D scaffolds"

MS., Mechanical Engineering

Khajeh Nassir Toosi University of Technology, Iran — Aug. 2009 - Jan. 2012

Thesis Title: **"**Numerical Solution of Flow Problems Using Graphical Processing Units"

BS., Mechanical Engineering

Isfahan University of Technology, Iran — Aug. 2005-Jul. 2009

APPOINTMENTS

Assistant Professor

Department of Mechanical Engineering, The Citadel, SC — Aug. 2020-Present

- Teaching graduate and undergraduate courses in the area of Thermal/Fluid sciences, Aerodynamics/Propulsion, Machine Design, Engineering Materials, Measurements and Instrumentation, Numerical Methods
- Started Rocket Club and took club to Space Port America Cup 2022, biggest intercollegiate rocket competition
- Received external and internal grants from NASA, Amazon and Citadel School of Engineering
- Member of Graduate curriculum committee
- ASEE-SE 2022 organizer committee

Lecturer

Department of Mechanical Engineering, Clemson University, SC — Jan. 2019-Jul. 2020

- Teaching graduate and undergraduate courses in the area of Thermal/Fluid Sciences, Propulsion, Machine Design, Mechanisms and Linkages
- Adviser of Clemson Rocket Club

Graduate Laboratory Instructor (Thermal Fluid lab)

Department of Mechanical Engineering, Clemson University, SC — Aug. 2014-Dec. 2018

- Teaching Thermal and Fluid science lab with five modules in Data Acquisition System, Wind Tunnel, Water Table, Sensors, HVAC

HVAC Engineer

Mojda Counseling Engineering Co., Hamedan, Iran — Aug. 2012–Jun. 2014

- Designed ductwork, piping, exhaust, sprinkler for 500+ beds hospitals
- Designed pump, furnace, chiller, air handlers for mechanical room

Internship

Hamedan's 1000 MW steam power plant, Hamedan, Iran — Jun.–Aug. 2007

- Conducted research on transition logistics to convert from wet cooling tower to dry cooling tower

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LICENTURE and CERTIFICATIONS

Licensed Professional Engineer (PE) in South Carolina — July 2024

Introduction to Machine Learning Certificate (Stanford University) — July 2023

Machine Learning Professional Development Intensive for teachers (Coding School) — July 2023

FUNDED PROJECTS

- NASA's MINI-REAP Research grant — 2020-2021
- Deans Office grant for starting Citadel Rocket Club — 2020-2021
- Citadel School of Engineering Vision Grant, — 2022-2023
  "Developing an Interdisciplinary Course in Construction Automation and Robotics"
- Citadel School of Engineering Vision Grant, — 2022-2023
  "Concept Plan for Autonomous Sustainable Robotics Systems Outreach, Education and Laboratory Development
- Amazon DeepRacer Grant — 2023-2024
- Citadel School of Engineering, — 2024-2025
  "Generative AI and Augmented Reality/Mixed Reality for Enhanced College Engineering Student Experience"

HONORS AND AWARDS

- Dean's Faculty Recognition Award — 2024-2025
- Outstanding Graduate Teaching Assistant Award, Clemson University — 2016-2017
- National Organization for Development of Exceptional Talents (NODET), Hamedan, Iran — 1998-2005

JOURNAL PAPERS

Google Scholar: *https://scholar.google.com/citations?user=XL-5hkAAAAAJ&hl=en*

- Yang Z., **Niksiar, P**., Meng, Z. "Identifying structure-property relationships of micro-architectured porous scaffolds through 3D printing and finite element analysis", *Computational Materials Science*, 2022
- **Niksiar, P.**, Meng, Z., Porter, M.M. "Multidimensional Mechanics of Three-Dimensional Printed and Micro-Architectured Scaffolds", ASME. *J. Appl. Mech*.; 88(10), 2021
- **Niksiar, P.,** Bubacz M., Ragan, D., Elamin G., Bass P., "Emerging Ways to Conquer Education Challenges in Times of COVID-19 and Their Influence on Students' Academic Performance", *Journal of Higher Education Theory and Practice*, Vol 21 (13), 2021
- **Niksiar, P.**, Su, F.Y., Frank, M.B., Ogden, T.A., Naleway, S.E., Meyers, M.A., McKittrick, J. and Porter, M.M. "External Field Assisted Freeze Casting", *Ceramics*, *2*(1), pp.208-234. (invited), 2019
- **Niksiar P.**, Frank M. B., McKittrick J., Porter M. M. "Microstructural evolution of paramagnetic materials by Magnetic Freeze Casting", *Journal of Materials Research and Technology,* 8(2), pp. 2247-2254, 2019
- Porter, M.M. and **Niksiar, P.**, "Multidimensional mechanics: Performance mapping of natural biological systems using permutated radar charts", *PloS one*, *13*(9), p.e0204309, 2018
- Porter, M.M., **Niksiar, P**. and McKittrick, J. "Microstructural control of colloidal-based ceramics by directional solidification under weak magnetic fields", *Journal of the American Ceramic Society*, *99*(6), pp.1917-1926, 2016

CONFERENCE PAPERS

- **Pooya Niksiar**, Blakely Odom, "Incorporating Artificial Intelligence into Mechanical Engineering with Amazon DeepRacer", *American Society of Engineering Education 2024, Portland, Oregon*
- **Pooya Niksiar**, Ryan Integlia, "Formation of the Citadel Aerospace and Rocketry Student Organization", *American*

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Society of Engineering Education-South East, 2022

- Gafar Elamin, Monika Bubacz, Adam Devoria, Deirdre Ragan, **Pooya Niksiar**, "Student-Instructor academic relationships: effects of background and culture", *American Society of Engineering Education-South East, 2022.*
- Bubaz M., **Niksiar P.**, Elamin G., Ragan D., Bass P., *"*Potentials and limitations of Face to Face and Hybrid Teaching Modes*", American Society of Engineering Education-South East, 2021*
- Batouli M., Vesali N., Wood T. A., **Niksiar P**., "*Strategies for Student Engagement in Hybrid Class* Environment*", American Society of Engineering Education-South East, 2021*
- **P. Niksiar**, A. Ashrafizadeh, M. Shams, A. Madani, *"*Implementation of a GPU-based CFD Code*", International Conference on Computational Science and Computational Intelligence,* March 2014, Las Vegas.

PRESENTATIONS

- **Niksiar, P**., Porter, M. M., "Effect of weak external magnetic fields on micro/macro structure of freeze cast scaffolds" *The Minerals, Metals and Materials Society Meeting*, February 26 - March 02, 2017, San Diego California
- **Niksiar P.**, Nath S., Frank M., McKittrick J., Porter M. M., "Microstructural Characterization of Magnetic Freeze Cast Scaffolds", *Poster competition*, October 2015, Clemson University

TEACHING EXPERIENCE

The Citadel
2020-present

Mechanical Engineering Department

- **Undergraduate Courses**
  - Thermal Fluid Systems I
  - Thermal Fluid Systems II
  - Introduction to Aerodynamics
  - Numerical Methods in Engineering
  - Machine Design
  - Engineering Materials
  - Measurements and Instrumentation
  - Introduction to Mechanical Engineering
- **Graduate Courses**
  - Advanced Fluid Mechanics
  - Applied Aerodynamics

Clemson University
2019-2020

Mechanical Engineering Department

- **Undergraduate Courses**
  - Thermodynamics
  - Machine Design
  - Foundations of Mechanical Systems
  - Senior Design Advising
  - Thermal and Fluid Science Laboratory
- **Graduate Courses**
  - Aerospace Propulsion

CAPSTONE PROJECTS

- Magnetic braking for fishing casting reel to remove backlash problem
  The Citadel — Fall 2022-Spring 2023

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- High power rockets, participating in Space Port America 2022
  The Citadel — Fall 2021-Spring 2022
- Single arm operated wheelchair, (2 teams)
  The Citadel — Fall 2020-Spring 2021
- Modular water tunnel with data acquisition system (3 teams)
  Clemson University — Spring 2020
- BMW's Wax seal work cell cleaning in Spartanburg plant, SC (3 teams)
  Clemson University — Fall 2009

WORKSHOPS AND CONFERENCES

- KEEN National Conference, Atlanta, — January 27-30
- Mini-Exceed Teaching Workshop, — Jan. 13-14, 2021
- NASA STEM Better Together, — 24 June 2021
- SC EPSCoR (NASA, DoD, NSF, DoE, USDA/NIFA), — 23 July 2021
- Illinois Computer Science Summer Teaching Workshop — 2021

TECHNICAL SKILLS

- **Material Characterization and Fabrication**: Freeze casting, Scanning Electron Microscopy (SEM), Energy Dispersive X-ray Spectrometer (EDS), 3D printing
- **Programming and Simulations**: CUDA (GPU programming), C++, MATLAB, ANSYS-CFX, SolidWorks, AutoCAD, Maple, LabVIEW
- **Numerical Simulations**: Finite Element, Finite Volume and Finite Difference Analysis, Grid generation
- **Graphical and Visual Edits**: Adobe Illustrator, Adobe Photoshop, Adobe Premiere, Camtasia

SERVICE

Scientific Reports reviewer	2022
American Society of Engineering Education reviewer	2023, 2022
Conference organizer for American Society for Engineering Education -Southeastern section	The Citadel, 2022
The Citadel's Rocket Club adviser	2020-present
Clemson Rocket Club advisor	2019-2020
Mechanical Engineering Summer Camp director, Clemson University	Jul. 17-23, 2018
Graduate Writing Teaching Assistant, Clemson University	2017-2018
Curriculum Representative of Mechanical Engineering Graduate Student Council (MEGSC)	2017-2018

PROFESSIONAL MEMBERSHIP

- American Association for Engineering Education (ASEE) — since 2020
- Minerals, Metals & Materials Society (TMS) — since 2016
- American Society of Mechanical Engineers (ASME) — since 2018
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) — since 2016

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OUTREACH

Poster Judge, Undergraduate Research Poster Symposium, Clemson University	Jul. 27, 2018
Artisphere, science and art festival exhibitor, Greenville, SC	May 2016 & 2017
iMAGINE Upstate exhibitor, STEAM festival in Greenville, SC	Apr. 2016
Volunteer at Helping Hands of Clemson	Summer 2018