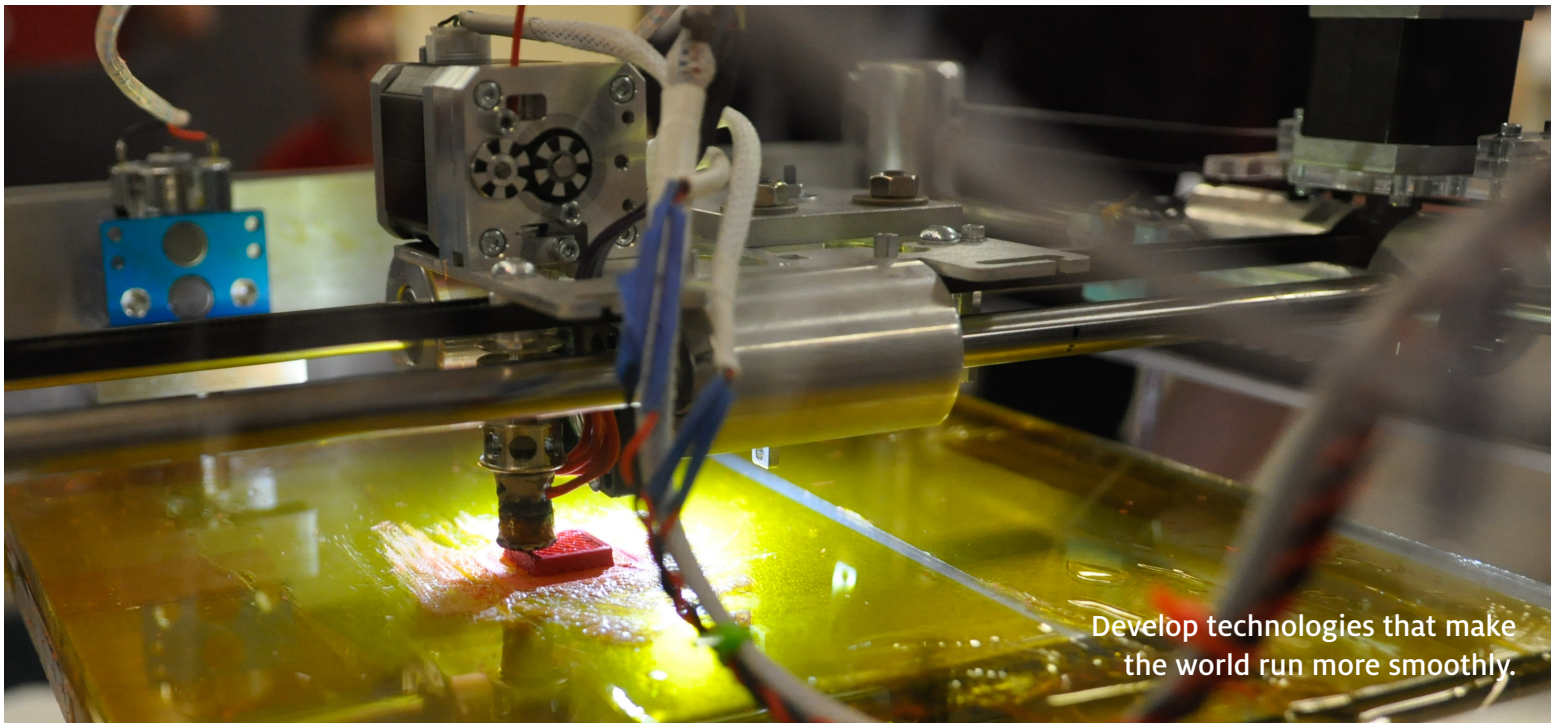
COLLEGE OF ENGINEERING
Aerospace & Mechanical Engineering

MECHANICAL ENGINEERING GRADUATE STUDIES

Making the machines that move our world



$5.5 MILLION
in annual research expenditures

Research Focus Areas

- Dynamics and Control
- Fluid Dynamics
- Solid Mechanics
- Thermosciences

Degrees

- PhD Mechanical Engineering
- MS Mechanical Engineering *(online option)*
- ME Robotics and Automation

Top 30%
mechanical engineering graduate programs
(U.S. News & World Report 2022)

"I've worked in Spain, Germany and Mexico, and the tools we have at the University of Arizona are absolutely incredible – the best tools, technology and interaction with professors."

- Christian Davila-Peralta, PhD student

Funding options throughout degree lifecycle

Application Deadlines

- Fall: January 1
- Spring: June 1

Contacts

Samy Missoum, *Associate Head of Graduate Studies*
smissoum@arizona.edu

Eniko T. Enikov, *Director of Master of Engineering Program*
enikov@arizona.edu

Ara Arabyan, *Director of Online MSME program*
arabyan@arizona.edu

Coordinator, Graduate Studies Program
engr-amegradadvisor@arizona.edu

COLLEGE OF ENGINEERING
Aerospace & Mechanical Engineering

"Having these researchers, pillars in their fields, under the same roof gives our department an edge in being able to bridge gaps in knowledge and best prepare our faculty and students to solve problems."
- Alex Craig, assistant professor

Faculty Expertise

Majid Beidaghi – beidaghi@arizona.edu
discovery and synthesis of advanced functional materials • energy storage materials and devices (batteries and supercapacitors) • synthesis and characterization of MXenes and other 2D materials • advanced manufacturing of energy storage devices, sensors, and membranes

Eric A. Butcher – ebutcher@arizona.edu
spacecraft GNC • astrodynamics • nonlinear dynamics, vibration and control • stability, control and estimation in periodic, delayed and fractional systems

Cho Lik Chan – cholik@arizona.edu
heat transfer • materials processing • boundary elements methods

Stuart A. Craig – sacraig@arizona.edu
aerodynamics • stability and laminar turbulent transition of supersonic and hypersonic boundary layers • experimental fluid mechanics • hydrodynamic stability

Eniko T. Enikov – enikov@arizona.edu
dynamics of charged particles and macro-ions • control of processes driven by electrostatic forces • neural-network-based self-learning methods for control of human-machine interfaces

Hermann Fasel – faselh@arizona.edu
computational fluid dynamics • hydrodynamic stability • laminar turbulent transition • turbulent flows • hypersonic flows • flow control • nonlinear dynamics • aerodynamics • UAVs • flight experiments • autonomous flight

David Hahn – dwhahn@arizona.edu
thermal sciences • laser-based diagnostics • renewable energy • combustion • biophotonics • laser-material interactions • plasma-material interactions

Kyle Hanquist – hanquist@arizona.edu
hypersonics • nonequilibrium flows • molecular gas dynamics • computational fluid dynamics • low-temperature plasmas • rarefied gas and optimization

Qing Hao – qinghao@arizona.edu
heat transport inside lithium-ion batteries • high-power electronics • thermal insulation materials • thermoelectrics • measurement & applications of graphene and other two-dimensional materials

Kavan Hazeli – hazeli@arizona.edu
materials design • human-centered design • mechanical behavior of materials • multi-functional materials • failure analysis • fatigue • thermo-mechanical properties • biomaterials design and characterization

Jeffrey W. Jacobs – jwjacobs@arizona.edu
experimental fluid dynamics • hydrodynamic instabilities, including Richtmyer Meshkov and Rayleigh-Taylor instabilities • turbulent mixing

Daniel Larsson– dlarsson@arizona.edu
autonomy • decision-making under uncertainty • path-planning • information-limited control • information-theoretic abstraction • representations for autonomous systems • artificial intelligence • optimization, inference and estimation

Peiwen 'Perry' Li – peiwen@arizona.edu
renewable energy • heat mass transfer in gas turbines and HVACR systems • electrolyzers • energy-water nexus • fuel cells • hydrogen storage and generation • energy and power systems

Erdogan Madenci – madenci@arizona.edu
prediction of deformation and failure modes in metallic and composite materials • characterization of mechanical properties of materials

Farzad Mashayek – mashayek@arizona.edu
turbulent reacting flow • plasma flow • electrostatic atomization • solid ion batteries • computational methods • machine learning applications

Samy Missoum – smissoum@arizona.edu
design optimization • probabilistic design, reliability and risk assessment • vibrations • advanced finite element modeling

Bernard Parent – bparent@arizona.edu
reactive flows • re-entry flows • plasma-assisted combustion • plasma-based fuel reforming • plasma aerodynamics • computational fluid dynamics • scramjets • lightning

Hossein Rastgoftar – hrastgoftar@arizona.edu
decision-making under uncertainty • human-robotic interaction • swarm robotics • system autonomy • UAS traffic management • intelligent transportation • formal specification and verification • finite-state abstraction of dynamical systems

Sergey Shkarayev – svs@arizona.edu
aerodynamics • fluid-structure interactions • unmanned aerial vehicles

Jekan Thanga – jekan@arizona.edu
space robotics • CubeSats and sensor-networks • machine learning applied to dynamics and control of swarms • small satellite propulsion • autonomous systems • power and thermal systems

Xiaoyi Wu – xwu@arizona.edu
tissue engineering • biomechanics • biomaterials and computational biomaterials

Israel Wygnanski – wygy@arizona.edu
aerodynamics related to fixed-wing and rotary aircraft • control of separation • high-lift devices • drag reduction • aeroacoustics, particularly jet noise, cavity noise and screech

Vitaliy Yurkiv – vyurkiv@arizona.edu
multi-physics modeling and machine learning calculation of energy storage and conversion technologies • ab-initio density functional theory calculations • phase-field modeling • thermal measurements of rechargeable batteries • thermal runaway assessment in electric vehicles

Olesya Zhupanska – oiz@arizona.edu
micromechanics of composites • structural composites in extreme environments • low velocity impact of composites • PDE-constrained optimization with applications to mechanics • contact mechanics

Yitshak Zohar – zohar@arizona.edu
biomicrofluidics and microscale manipulation of biospecies, such as proteins, cells and tissues in microfluid systems