Degrees

- Ph.D. in Aerospace Engineering
- Ph.D. in Mechanical Engineering
- M.S. and M.Eng. in Aerospace Engineering
- M.S. and M.Eng. in Mechanical Engineering

Student Composition and Diversity

U.S. News and World Report rated UTA as the 5th-most diverse university in the United States in 2017. The University is an Hispanic-serving institution and is one of the 40 most popular U.S. colleges and universities for international students, based on data from the Institute of International Education's 2014-15 Open Doors Report.

How to Apply

Begin your application for graduate admission today at **uta.edu/admissions/graduate/apply**.

Please be sure to check application deadlines and include all of the required application materials and fees.

Financial Assistance

All applications for admission will be also be considered for assistantships, fellowships, and scholarships. Complete your application early to take advantage of all opportunities for financial aid.

Who Hires Our Graduates?

Graduates of the department work at many companies in the region and around the nation, including Lockheed Martin, Bell Helicopter Textron, Facebook, Yahoo, Boeing, General Motors, and many others.

Learn More

For more information about the Mechanical and Aerospace Engineering Department, visit our website at **uta.engineering/ae** or **uta.engineering/me** or contact the graduate advisor:

Atilla Dogan, Ph.D.
Aerospace
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Seiichi Nomura, Ph.D.
Mechanical
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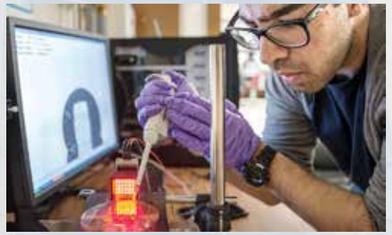
Why Pursue a Graduate Degree at UTA?

No profession unleashes the spirit of innovation like engineering. From flight to alternative energy, faculty and students in our aerospace and mechanical engineering programs constantly discover how to improve lives by creating bold new solutions that connect science to life in unexpected, forward-thinking ways. Emboldened by the direct and positive effect we have on people's everyday lives we channel our imagination and creativity to meet the needs and challenges of the 21st century. Join us in an exciting journey of discovery, innovation and leadership as you become the next UTA engineer to make a mark on history!

An Impactful Research University

The University of Texas at Arlington is rising in stature through its commitment to transforming the lives of students and pushing the boundaries of knowledge. Dramatic, measurable advancements continue to propel the University toward its goal of becoming one of the nation's premier research institutions.



UTA is designated an R-1 Carnegie "highest research activity" institution. Research activity at the university has more than tripled to more than $85 million over the past 10 years, with increasing expertise in bioengineering, medical diagnostics, micro-manufacturing, and defense and Homeland Security technologies, among other areas. With a projected total global enrollment of close to 57,000 students, UTA is one of the largest universities in Texas. UTA is a first-choice university for students seeking a vibrant college experience. In addition to receiving a first-rate education, our students participate in a multitude of activities that prepare them to become the next generation of leaders.

An Ideal Location

UTA is located in the heart of the Dallas/Fort Worth Metroplex, the fourth-largest metropolitan area in the United States. Arlington is located between the cities of Dallas and Fort Worth and is a center for sporting events, tourism and manufacturing. The Metroplex has one of the highest concentrations of corporate headquarters in the United States, with corporations such as Texas Instruments, AT&T, Ericsson, Lockheed Martin, Bell Helicopter Textron, Jacobs Engineering, and many more. Also, just minutes from campus, DFW International Airport and several interstate highways allow easy access to global collaboration and commerce.

Mechanical and Aerospace Engineering

UNIVERSITY OF TEXAS ARLINGTON | DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

Faculty and Research Interests

Ashfaq Adnan **aadnan@uta.edu**
Nanoscale phenomena and multiscale analysis, mechanics of engineering nanomaterials, mechanics of polymer and advanced materials, fracture mechanics

Dereje Agonafer **agonafer@uta.edu**
Electronic packaging, heat transfer, thermal engineering

Miguel Amaya **mamaya@uta.edu**
Two-phase heat and mass transfer – boiling, evaporation, wetting

Erian Armanios **armanios@uta.edu**
Computational solid mechanics, analysis, testing and design of composite structures, failure characterization and prediction, elastic tailoring, energy dissipation, implementation of active materials for flow control and nondeterministic methods for structural prognostics

Pranesh Aswath **aswath@uta.edu**
Synthesis, processing and characterization of ceramics, intermetallics and composites. Deformation, creep, fatigue and environmental degradation of materials. Analytical electron microscopy, auger spectroscopy, X-ray diffraction, EPMA. Processing and properties of ceramic matrix composites and ceramic coatings for biological applications. Tribology and lubrication

Andrey Beyle **andrey.beyle@uta.edu**
Mechanics of continuum, physics of heterogeneous media, theory of composites, composite structures, modeling of technological processes, mechanics of reacting media, mechanics of growing bodies, applied mathematics

Alan Bowling **bowling@uta.edu**
Multibody dynamics, control, robotics, biomechanics

Wen Chan **chan@uta.edu**
Composite structure design, mechanics of composite materials, material behavior of composites, finite element analysis, damage tolerance and durability, fracture mechanics and fatigue analysis, and smart structures

Bernd Chudoba **chudoba@uta.edu**
Multi-disciplinary vehicle design, hypersonic vehicle design, systems engineering, technology forecasting, product life cycle

D. Stefan Dancila **dancila@uta.edu**
Solid mechanics, composite and smart materials/ structures, tailoring of elastic deformation, failure modes, energy dissipation, inflatable space structures, space tethers, fatigue and fracture, nondestructive evaluation, piezoelectric actuation and flow control, rotorcraft, high altitude airships, composite prosthetics, renewable energy

Brian Dennis **dennisb@uta.edu**
Computation fluid dynamics, multidisciplinary design optimization, finite element methods applied to fluid and solid mechanics, heat transfer, electromagnetics, inverse problems, parallel computing including the design, construction, and programming of Beowulf-type PC clusters, development of high-performance computing software, unstructured mesh generation and deformation

Atilla Dogan **dogan@uta.edu**
Flight dynamics and control, nonlinear flight simulation, unmanned vehicle systems, unmanned aerial systems, autonomous systems, modeling and control of close proximity flight (aerial refueling, formation flight), path planning and target tracking, probabilistic pilot modeling

David Ewing **david.ewing@uta.edu**
Thermal management systems, phase change material applications, nanofluidic systems, engineering pedagogy

Raul Fernandez **fernandez@uta.edu**
Product design, development and commercialization, manufacturing, process automation, robotics, dynamic systems

A. Haji-Sheikh **haji@uta.edu**
Heat transfer analysis in conduction, convection, and radiation, and fluid flow and heat transfer in ducts and heat exchangers

Zhen Xue Han **han@uta.edu**
Computational fluid dynamics and heat transfer, air-breathing propulsion systems, turbomachinery, multidisciplinary design optimization

Haiying Huang **huang@uta.edu**
Health monitoring of structures and human, wireless microwave sensors, optical fiber sensors, ultrasound, non-destructive evaluation, solid mechanics, fatigue and fracture

David Hullender **hullender@uta.edu**
Machine vibration and stress analysis, hydraulic pneumatic and mechanical systems design and analysis, compressible and incompressible fluid dynamics, modeling and computer simulation, and analysis of random and stochastic processes

Endel Iarve **endel.iarve@uta.edu**
Discrete damage modeling methodologies for laminated composites, integrated computational materials science and engineering bringing together manufacturing and performance aspects of advanced composite materials

Ankur Jain **jaina@uta.edu**
Microscale energy conversion, microscale heat transport, bio-MEMS, MEMS, semiconductor thermal management, 3-D integrated circuits

Vistasp M. Karbhari **vkarbhari@uta.edu**
Processing and mechanics of composites, deterioration science of polymers and composites, bio-materials, infrastructure renewal and multi-threat mitigation (including blast), sustainability, impact/damage mechanics and crash energy management, nondestructive assessment of materials and structures, damage prognosis, and structural health monitoring

Daejong Kim **daejongkim@uta.edu**
Turbo machinery aerodynamics, modeling and system dynamics of solid oxide fuel cell and gas turbine hybrid systems, advanced oil-free bearings for turbo machinery, non-linear rotor dynamics

Ratan Kumar **ratan.kumar@uta.edu**
Computational fluid dynamics and heat transfer, FEA for structures, machine design, Web-based education

Leila Ladani **leila.ladani@uta.edu**
Multi-scale manufacturing, multi-scale mechanics, computational solid mechanics, experimental characterization at multi-scale, plasticity, fatigue, damage

Kent Lawrence **lawrence@uta.edu**
Stress and vibration analysis, structural analysis, structural dynamics, finite element methods, and computer aided engineering

Frank Lu **franklu@uta.edu**
Fluid dynamics, shock and viscous phenomena, aerodynamic heating, jets and sprays, supersonic and hypersonic flows, propulsion, detonations, flow visualization, and instrumentation and facility development

Cheng Luo **chengluo@uta.edu**
Design, modeling and fabrication of nanosystems and biomicrosystems, solid mechanics

Luca Maddalena **maddalena@uta.edu**
Hypersonic air-breathing propulsion, injection, mixing and combustion in high-speed flows, vortex dynamics, experimental fluid dynamics, instrumentation, advanced propulsion configurations

Andrew Makeev **makeev@uta.edu**
Composite and metallic materials, structural methods, prognostics and reliability

Nancy Michael **michael@uta.edu**
Electronic materials, integrated circuit interconnect technology, materials characterization

Hyejin Moon **hyejin.moon@uta.edu**
Micro/nanosciences, bioMEMS/bioNEMS, micro/ nanofluidics, lab-on-a-chip, diagnostic technology, microscope heat transfer, energy harvesting technology

Robert "Bob" Mullins **mullins@uta.edu**
Aircraft, rotorcraft, and missile analysis, design, and modeling, manufacturing and systems engineering, integrated weapon systems design including radar, IR system analysis, design, and simulation

Seiichi Nomura **nomura@uta.edu**
Micromechanics, analysis of composite materials, computer algebra applications

Ken Reifsnider **kenneth.reifsnider@uta.edu**
Director, Institute for Predictive Performance Methodologies

Panos Shiakolas **shiakolas@uta.edu**
Robotics (surgical and medical diagnostics, manufacturing), human robot interaction modalities, 'smart' personalized wearable prosthesis and assistive devices (rehabilitation, training, diagnostics), additive manufacturing (multi-material multi-process at micro, meso and macro scales), design and fabrication of bio-scaffolds, engineering education, mechatronics, robotics, modeling, controls

Donghyun Shin **shin@uta.edu**
Nano/micro-scale heat transfer phenomena, advanced nanomaterials for high Temperature applications, heat transfer fluid and energy storage for renewable energy technologies

Dudley Smith **dudleys@uta.edu**
Conceptual and preliminary design of aircraft and vertical lift/rotorcraft, propulsion

Kamesh Subbarao **subbarao@uta.edu**
Nonlinear and robust adaptive control, optimal control, mathematical modeling and dynamical systems theory, optimal estimation and system identification, flight dynamics and control systems, astrodynamics, robotics and unmanned vehicle systems

Robert Taylor **taylorrm@uta.edu**
Structural design and optimization, design for manufacture, design for additive manufacture, 3-D printed structures, finite element analysis, solid mechanics

Albert Tong **tong@uta.edu**
Spray combustion, numerical modeling of heat transfer, and fluid flow

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Finite element analysis, structural optimization, vibration, and structural dynamics

Don Wilson **wilson@uta.edu**
Gas dynamics, aerospace propulsion systems, high-speed aerodynamics, hypersonic flow, and experimental fluid dynamics

Robert L. Woods **woods@uta.edu**
Dynamic systems, modeling and simulation, control systems, fluid power control, fluidics, microprocessor and digital controls, logic systems, automotive engineering

Bo Yang **boyang@uta.edu**
Laser-matter interaction; micro/nanoscale mass transport; interfacial mechanics; fracture mechanics, defects, fatigue; computational mechanics/physics

Current Research

Andrew Makeev received a $181,000 grant from the Office of Naval Research to purchase an ARES-G2 integrated axial-torsional platform that will allow his team in the Advanced Materials and Structures lab to better understand material properties.

Haiying Huang's current research projects include using sensors for smart medical devices, high-temperature monitoring, simultaneous strain and temperature measurement, ultrasound/acoustic emissions and 3-D surface profiling for material damage diagnosis and prognosis

Ankur Jain was awarded a $500,000 National Science Foundation CAREER grant to develop a fundamental understanding of how heat flows in materials within a Li-ion battery.

Hyejin Moon is using a $400,000 National Science Foundation CAREER grant to support her work with microfluidic devices, which promise to improve 3D tissue and cell sample analyses.

Luca Maddalena was awarded a $1.01 million Defense University Research Instrumentation Program grant to build the country's only university-based, arc-heated, hypersonic-testing facility for thermal protection systems.

State-of-the-Art Research Facilities

Advanced Materials and Structures Lab

The Advanced Materials and Structures Lab features state-of-the-art facilities and equipment that enables a fundamental shift from traditional time-consuming trial and error experimentation loops and empiricism in the design of composite materials and structures, to efficient diagnostics and prognosis methods.

Aerodynamics Research Center

The ARC features five large-scale wind tunnels (arc jet, low-speed, transonic, supersonic, and hypersonic). Other features include a machine shop, an electronics room, office space for 15 students, and a separated compressor building. The facility is being renovated to house Luca Maddalena's arc-heated hypersonic testing facility.

Electronic MEMS and Nanoelectronics Systems Packaging Center

The EMNSPC is a first-class research center meeting the needs of industry through research, education and training, with a focus on microelectronics, MEMS and nanoelectronics (with a special emphasis on thermo-mechanical issues) as a fundamental research area.