College of Engineering and Computer Science (CECS) Virtual Graduate Open House: *PhD Edition*

Ali P. Gordon, PhD, F. ASME
Professor and Associate Dean
cecsgrad@ucf.edu
Open House Goals

• Learn more about UCF’s College of Engineering and Computer Science

• Connect you to the graduate programs in your prospective department

• Learn about the application process

CECS Grad Site
http://grad.cecs.ucf.edu
Dean’s Welcome – Dr. Michael Georgiopoulos

- Appointed as Dean in 2013
- Numerous Research and Teaching Awards
- Joined UCF in 1986
- Pegasus Professor in 2010
- Earned PhD in Electrical Engineering from the University of Connecticut
- BS in Electrical, Electronics, and Communications Engineering from the National Technical University of Athens
Enrollment by State & Territories (non-Florida): 2023-24 Fall Term
Total States (non-FL): 47; Total USA Territories & DC: 3
Percent Non-FL: 6.70%

Fall 2023:
228 CECS Graduate Students
non-FL residents
Enrollment by Nation of Citizenship: 2023-24 Fall Term
Total Countries (non-USA): 65

1,258 US Graduate Students in CECS
807 International Graduate Students in CECS
The University of Central Florida was founded in 1963 as Florida Technological University, with the mission of supporting the growing United States space program at nearby Kennedy Space Center and Cape Canaveral Air Force Station.

US News and World Report 2023:
37th Online Engineering MS
27th Online Computer Information Technology
College of Engineering and Computer Science

CECS by the numbers

13,544 UG+G
STUDENTS ENROLLED
Fall 2022

34% of UG
UNDER-REPRESENTED
Fall 2022

1310/4.2
SAT/GPA of STUDENTS
Fall 2022

$54.4M
RESEARCH FUNDING
2021-2022

#1
SUPPLIER OF GRADUATES TO THE U.S AEROSPACE AND DEFENSE INDUSTRIES

41,000+
ALUMNI
Spring 2022

31% of UG
PELL GRANT-ELIGIBLE
Fall 2022

1466/4.5
SAT/GPA of HONORS
Fall 2022

$50.7M
RESEARCH EXPENDITURES
2021-2022

#1
COLLEGIATE CYBERSECURITY AND COMPUTER VISION TEAMS IN THE US

34% of UG
UNDER-REPRESENTED
Fall 2022

29% of UG
PELL GRANT-ELIGIBLE
Fall 2022

NASA KENNEDY SPACE CENTER
EMPLOYEES ARE UCF GRADS

13,544 UG+G
STUDENTS ENROLLED
Fall 2022

31% of UG
PELL GRANT-ELIGIBLE
Fall 2022

$50.7M
RESEARCH EXPENDITURES
2021-2022

#2/23
PRODUCER OF UG DEGREES TO UNDER-REPRESENTED GROUPS AND WOMEN

#10
PRODUCER OF UG DEGREES IN THE US
CECS’s Home

- Six academic departments
- Numerous Engineering and Computer Science Buildings
- Various Research Buildings
- Nearly 200 Faculty in CECS
- Adjacent Nation’s 7th Largest Research Park (145 Companies nearby)
- Nation’s epicenter for computer modeling simulation and training

www.cecs.ucf.edu

Airports: MCO (20), SFB (15), MLB (60), DAB (55), TPA (107)
Rail: Brightline, SunRail, and Amtrak
Interstate: I-95, I-4
CECS’s Neighbors

Manufacturing

International Companies

Information Tech

Logistics

Defense

Aviation and Aerospace

BioTech and Life Sciences

Renewable and CleanTech
CECS’s Research Highlights

Collaborations
CECS+CREOL
CECS+COS
CECS+COM
CECS + CBA
CECS + SMST

Research Park
All DoD Entities
100 Companies
10,000 Employ.
Themed Parks
Disney, Universal

Learning Sciences
Cluster

AI and Big Data
Initiative

Smart City + FDOT
Initiative
(Transportation, Water, Mobility)

Renewable Energy and
Chemical Transformation (REACT)
Cluster

Disability, Aging and Technology
Cluster

Advanced Materials Processing and
Characterization Center (AMPAC)
Nanoscience Technology Center
(NSTC)

Interactive Computing Experiences
Cluster
(AI, VR, XR)

Center for Research in
Computer Vision
Center

Genomics and Bioinformatics
Cluster

Renewable, Sustainable, Intelligent
Energy Systems (RISES) + Siemens
(Energy, Smart Grid)
Center

CATER + Siemens
(Energy, Turbomachinery)
Cluster

Sustainable Coastal Systems
Center

Cyber Security and Privacy
Cluster

Bionix (Bionics, Materials,
Implants and Interfaces)
Cluster

Faculty
163 T/TE
431/L
69 Adjuncts
64 Post-Docs

Deans AB
40 + Companies
Lockheed Martin
L3Harris
Northrop
Leidos, Raytheon
NASA-KSC
Space Industry

Chip Technology
Initiative
16+ Hires

Digital Twin
Initiative
14+ Hires

Infectious Diseases
Initiative
15+ Hires

Energy
Initiative
16+ Hires

Space/AE
Initiative
15+ Hires

Cyber
Initiative
5 Hires

AI Initiative
18+ Hires
CECS Departments

- Civil, Environmental and Construction Engineering (CECE)
- Computer Science (CS)
- Electrical and Computer Engineering (ECE)
- Industrial Engineering and Management Systems (IEMS)
- Materials Science and Engineering (MSE)
- Mechanical and Aerospace Engineering (MAE)

www.cecs.ucf.edu
CECS Graduate Programs

Master's of Science (MS) Degree Programs
- Aerospace Engineering
- Biomedical Engineering
- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Environmental Engineering
- Digital Forensics
- Engineering Management
- FinTech*
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Modeling and Simulation*
- Systems Engineering
- Travel Technology and Analytics

Specialty Graduate Programs
- MS in Engineering Management, Professional Project & Systems Engineering Track (a cohort-based program)
- MS in Data Analytics
- Graduate Certificate in Data Analytics
- MS in Healthcare Systems Engineering Track

Doctor of Philosophy (PhD) Degree Programs
- Aerospace Engineering
- Big Data Analytics*
- Biomedical Engineering
- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Modeling and Simulation*

Graduate Certificate (GC) Programs
- Computer Forensics
- Construction Engineering
- Data Analytics
- Guidance Controls and Dynamics
- Healthcare Systems Engineering
- Mixed Reality Engineering
- Project Engineering
- Quality Assurance
- Structural Engineering
- Systems Engineering
- Technologies for Smart Communities
- Transportation Engineering

Admit Term
- Fall Priority
- Fall
- Spring
- Fall

App. Deadline
- Domestic (International)
  - January 15th (December 1st)
  - July 1st (December 1st)
  - December 1st (July 1st)
  - April 1st

New for Fall 2022
Also offered as fully online
*Interdisciplinary program

CECS Virtual Graduate Programs Open House | Fall 2023 | PhD Edition
PhD Programs

• PhD Civil Engineering
• PhD Environmental Engineering

Milestones

• 72 Credit hours (or 42 beyond MS)
• Qualifying Examination
• Candidacy Exam
• Defense

Admissions

• Minimum 3.0 GPA (Domestic can be below 3.0)
• No GRE required
• Official Transcript or International Transcript Evaluation (only from WES/Josef Silny)
• TOEFL (80), IELTS (6.5)
• Essay and Letters of Recommendation

Point of Contact

• Dr. Andrew Randall andrew.randall@ucf.edu

cece.ucf.edu
College of Engineering and Computer Science

Civil, Environmental, and Construction Engineering Department

Smart Buildings

Freeway Management

Water Reclamation

Smart Transportation

Global Positioning Systems

cece.ucf.edu

Tidal Modeling & Sea Level Rise

CECS Virtual Graduate Programs Open House | Fall 2023 | PhD Edition
Materials Science and Engineering

Research Interests

I. Nanomaterials
   Nanoparticles, nanosheets and nanotubes
   Optical and electric properties

II. Energy Materials
   Supercapacitors and batteries
   Wearable electronics
   Photovoltaic materials
   High temperature materials

III. Biomaterials
   Biosensors
   Tissue engineering
   Drug delivery
**Materials Science and Engineering**

**PhD Programs**
- PhD Materials Science and Engineering

**Milestones**
- Qualifying exams
- Candidacy exams
- Publication requirements (two refereed journal articles)
- Dissertation defense

**Admissions**
- BS MSE, MS MSE or related field with 3.0 GPA
- GRE is not required
- Official Transcript (International Transcript Evaluation)
- TOEFL (80), IELTS (6.5)
- Resume, Essay, and Three Letters of Rec

**Point of Contact**
- Dr. Jiyu Fang Jiyu.Fang@ucf.edu

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**CECS Virtual Graduate Programs Open House | Fall 2023 | PhD Edition**
Materials Science and Engineering

Material Characterization Facility (MCF)

- Scanning electron microscopy (SEM)
  - Joel JSM-6480
  - Zeiss Ultra-55
- Transmission electron microscopy (TEM)
  - Joel JEM-1011
  - Tecnai F30
- Focused ion beam (FIB)
  - FEI 200TEM
  - Zeiss FIB crossbeam
- X-Ray Diffraction (XRD)
  - XRD #1 Basic Diffraction
  - XRD #2 Environmental Diffraction
  - XRD #3 Thin Film Diffraction
- Second ion mass spectrometry (SIMS)
  - Cameca IMS-3F
  - PHI Adept
- Miscellaneous
  - XPS PHI 5400
  - Rutherford Backscatter
- AES/SAM PHI 600 (Auger)
- Molecular imaging PicoSPM
- MicroRaman spectroscopy
- Confocal Laser scanning microscope
- X-ray fluorescence spectrometer

mse.ucf.edu
PhD Programs

- PhD Industrial Engineering

Milestones

- Obtain a research advisor
- Identify a research topic
- Pass qualifying examination
- Pass candidacy examination
- Complete dissertation

Admissions

- BS IE, MS IE or related field with 3.0 GPA (probability and stats, calculus, programming)
- Competitive GRE taken with last 5 years
- Official Transcript (or no international transcript evaluation, unless transferring course work)
- TOEFL (80), IELTS (6.5)
- Resume, Essay, and Three Letters of Rec

Point of Contact

- Dr. Mansooreh Mollaghasemi mollagha@ucf.edu

iems.ucf.edu
Research Interests

• Modeling, Simulation, and Training Systems
• Operations Research and Optimization
• Manufacturing, Quality, and Production Systems
• Human Factors and Ergonomics
• Management Systems Engineering
• Innovation and Technology Entrepreneurship

Why IE at UCF

• IEMS is the top ranked program at CECS, and one of only two ranked IE Programs in Florida (after University of Florida)
• IE graduate programs ranked 40th in the world by U.S. News & World Report Best Graduate Schools 2021 guide
• Top 10 BSIE majors producers in the nation
• Faculty are excellent teachers and researchers, student-oriented, professionally active
• Large graduate program (100+ PhD and 300+ MS students)
• Graduate research opportunities
• Team projects - IE students get valuable practical experience through team projects

Outcomes

• PhD Program, Aero and Defense, Energy, Entertainment
• Consulting, Healthcare, Build your business

iems.ucf.edu
College of Engineering and Computer Science

Electrical and Computer Engineering

Autonomous Ground Vehicles
- Path planning and autonomous control interface developed by UCF for US Army
- Smart Grid – Plug & Play & Intelligent
- Teleoperation and Medical Robotics

Brain Computer Interfacing
- Situational awareness
- Seizure source localization and functional brain mapping
- Control and communication for brain-injured, quadriplegic patients
- Steady-State Visual Evoked Potential (SSVEP) BCIs

Sensors
- Light sensors
- Temperature sensor

Cyber-Physical-Human Systems
- An array of detection systems for imaging
- ECE Virtual Graduate Programs Open House | Fall 2023 | PhD Edition

ece.ucf.edu
PhD Programs

- PhD in Electrical Engineering
- PhD in Computer Engineering

Milestones

- Qualifying Review/ No Qualifying Exam
- Passing Candidacy / Dissertation Proposal presentation
- Dissertation (document) and Defense (presentation)

Admissions

- BS or MS with minimum 3.0 GPA
- GRE (minimum 308 Q+V)
- Official Transcript (no International Transcript Evaluation, unless transferring course work)
- TOEFL (80), IELTS (6.5)
- Resume, Essay, and Three Letters of Rec

Point of Contact

- Dr. Mingjie Lin mingjie.lin@ucf.edu

ece.ucf.edu
**Mechanical and Aerospace Engineering**

**PhD Programs**
- PhD in Mechanical Engineering
- PhD in Aerospace Engineering
- PhD in Biomedical Engineering

**Options**
- Qualifying examination
- Beyond MS, 15 hours of coursework
- Candidacy Examination
- Dissertation Defense

**Admissions**
- 3.0 GPA (Domestic can be below 3.0)
- No GRE
- Official Transcript (or International Transcript Evaluation, unless transferring course work)
- TOEFL (80), IELTS (6.5)
- Resume, Essay, and Three Letters of Rec

**Point of Contact**
- Dr. Jan Gou Jihua@gou@ucf.edu

[mae.ucf.edu](http://mae.ucf.edu)
College of Engineering and Computer Science

Mechanical and Aerospace Engineering

**Research Areas**

- Aero-propulsion and energy research
- Dynamics and Control Systems
- Advanced Sensing Technology
- Space Materials and Structures
- Materials Processing Techniques
- Nondestructive Evaluation

**Research Areas**

- Bio-Engineering
- Mechatronics and Robotics
- Mechanics of Materials
- Advanced Manufacturing
- Multiphase Heat Transfer and Fluid Flow
- Thermal Management Systems

mae.ucf.edu
Computer Science

MS Programs
- PhD in Computer Science
- PhD in Big Data Analytics (with College of Sciences)

Options
- 9 credit hours required: CDA 5106, COT 5405, COT 6410, must be a B or better
- Qualifying Review
- Candidacy
- 15 dissertation credit hours
- Proposal
- Defense

Admissions
- 3.0 GPA in MS or BS; B’s or better in undergraduate programming courses
- Students with strong background in CS or close fields (e.g. IT, Software Engr, Computer Engineering)
- GRE (no minimum, but Q:160 preferred)
- TOEFL (80), IELTS (6.5)
- Official Transcript (no International Transcript Eval, unless transferring course work)
- Resume, Essay, and Three Letters of Rec

Point of Contact
- Dr. Wei Zhang Wei.Zhang@ucf.edu

cs.ucf.edu
Notes about Transfer Work

• Our programs accept graduate courses completed before your admit term
• UCF must have your official transcripts and/or WES or Josef Silny Evaluation (even if it is not an admission requirement)
• Your Advisor and/or Graduate Program Director must approve your course work
• Courses must be on an approved Program of Study during your first semester at UCF
College of Engineering and Computer Science

On-Demand Program-Specific Overviews

Over 30 Overviews

Line-Up:
- Graduate Program Director/Coordinators
- Faculty Talks
- Campus Tour
- Financial Aid
- College Overview

All attendees to receive a link to the CECS On-Demand Overview of their prospective program

CECS Virtual Graduate Programs Open House | Fall 2023 | PhD Edition
Graduate Fellowships

- **Internal** – ORCGS, Presidential, Trustees, McKnight, McNair, etc.
- **External** – NSF, DoD SMART, DoD NDSEG, NASA, GEM, etc.
- Apply early
  - For Fall 2024 – November time-frame
- Contact prospective faculty advisor early
- Most funding is geared towards PhD students

https://graduate.ucf.edu/fellowships/
Application and Funding – Mr. Leben Goldman

- Director of Recruiting in the College of Graduate Studies
- Admissions and Recruiting
- Key lead on all Graduate Recruitment for UCF, recruitment event planning for graduate fairs, travel to represent UCF and its graduate programs at national conferences, design of relevant recruitment materials for UCF graduate programs
- Joined UCF in 2014
- Degrees from UCF and FSU
Next Steps
Research Centers and Faculty

- Advanced Materials Processing Analysis Center (AMPAC)
- Center for Advanced Transportation Systems Simulation (CATSS)
- Center for Advanced Turbomachinery and Energy Research (CATER)
- Center for Research in Computer Vision (CRCV)
- Coastal Dynamics of Sea Level Rise Research Cluster of Excellence
- Consortium for Applied Acoustoelectronics Technology
- Environmental Systems Engineering Institute
- FEEDER Center, DOE
- Future City Initiative
- Institute for Advanced Systems Engineering
- Interactive Systems & User Experience Research Cluster of Excellence
- Materials Characterization Facility (MCF)
- MIST Center, NSF I/UCRC
- Resilient, Intelligent and Sustainable Energy Systems (RISES) Cluster
- Stormwater Management Academy

2023 Recipients

- Kerrie Chen
  Engineering and Computer Sciences
  NSF Director Early Career Grant: $500,000

- Zhaomiao (Walter) Guo
  Engineering and Computer Sciences
  NSF Director Early Career Grant: $525,781

- Luigi Perotti
  Engineering and Computer Sciences
  NSF Director Early Career Grant: $520,769

2022: 8 Winners | 2021: 13 Winners...
Outlook and Closing
Benefits of a Graduate Degree

• Advance skillset
• Access to research-oriented roles
• Improve communication skills
• Enhance network
• Personal achievement
• PhD is a pathway to becoming a faculty member
• And more …
College of Engineering and Computer Science

CECS Graduate Programs Open House

Topics:
✓ Accelerated BS-to-MS Programs
✓ MS Programs
✓ PhD Programs
- Application Fee Waiver
- Research Positions


http://cecs.ucf.edu/gradday
• To encourage prospective PhD students to apply early, CECS will again have its **CECS Early Action** opportunity

• Complete applications for Fall admission received before **November 1st** will receive an application fee waiver

• Applications that are received early will be reviewed early

• Simply start your application [applynow.graduate.ucf.edu/apply/](http://applynow.graduate.ucf.edu/apply/)

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**Early Action = Application Fee Waiver**

- If you apply by November 1st, you will receive an application fee waiver.
- Applications received early will be reviewed early.
- Start your application at [applynow.graduate.ucf.edu/apply/](http://applynow.graduate.ucf.edu/apply/).
Our Expectations

• Graduate!!
• Abide by the various UCF, CECS, Dept., and Lab policies, guidelines, and regulations
• Explore what UCF has to offer
• Contribute to an atmosphere of collegiality and collaboration
• Be a positive ambassador for UCF
• Publish your research (Goal 2 to 3 journal articles and 3 to 4 conference papers)
Closing

• Every Fall academic term, approximately 700 new students join CECS graduate programs
• Getting students admitted to and enrolled into graduate-level programs is a team effort
• Prospective students should develop a personal roadmap to execute their plans
Thanks for Your Attention

Special Thanks:
CECS:
Heather Houser, Michael Georgiopoulos, Tracey Ziebro

CGS:
Leben Goldman, Brandy Pieper, and Jennifer Parham

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