

# Mihai Cimpuieru

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**Technical Skills :** Matlab, C++, LabView, SolidWorks, Java, Maple, GTPower, NI MAX, Ansys, Abaqus, MS Office;  
**Manufacturing:** 3D printing, Machine shop certified (CNC machining- mill, lathe), Carbon Fiber, Fiberglass;  
**Languages:** English, Romanian, French, Spanish (beginner).

## Education

- **University of Michigan - Ann Arbor** **Ann Arbor, Michigan**  
*PhD candidate in Mechanical Engineering - Dynamics and Vibration* *May 2025*  
GPA 4.00/4.00
- **Duke University** **Durham, North Carolina**  
*Bachelor of Science in Mechanical Engineering, Aerospace Engineering certificate* *May 2020*  
GPA 3.62/4.00
- **The International Computer High School of Bucharest** **Bucharest, Romania**  
*Mathematics and Physics Olympic program class* *June 2016*

## Research experience

- **Duke University - Aeroelasticity Research Department** **Durham, North Carolina**  
*Pratt Research Fellow under Dr. Robert Kielb's supervision (rkielb@duke.edu)* *May 2017 - present*
  - Investigate flutter occurrence on a turbomachinery blade in a linear cascade by performing research for a summer and 3 semesters as a Duke Engineering Pratt Fellow for the LASCADe Project
  - Detected blade displacements lower than 3% of blade chord in order to avoid nonlinear pressure perturbations by integrating a laser displacement tool and analyzing data using MATLAB and LabView software
  - Performed CAD modelling and FEA analysis of NACA 64-008A blades in order to insert pressure channels and pressure taps for integration of recess mounted pressure transducers to measure unsteady pressures at the blade surface
  - Lead and coordinated group of 5 graduate and undergraduate students working on the main subsystems of the LASCADe: Laser displacement subsystem, Excitation subsystem, Pressure measurement subsystem
- **KTH Royal Institute of Technology** **Stockholm, Sweden**  
*Summer Research Intern under Dr. Nenad Glodic's supervision (nenad.glodic@energy.kth.se)* *May 2019 - July 2019*
  - Designed open circuit low speed icing wind tunnel module by performing flow analysis, CAD model of the module, mechanical analysis and preliminary cost estimate
  - Analyzed the requirements for the design and integration of the systems enabling icing into the wind tunnel module; dimensionless similarity method, flow simulation in Solidworks and ANSYS and heat transfer concepts were utilized in order to obtain tunnel dimensions, maximum speed, heat exchanger design and the power needed to decrease the temperature of the air passing through the heat exchanger using Therminol D12 refrigerant
  - Performed literature study of the state-of-the-art low speed wind tunnel facilities (regular and icing wind tunnels) by analyzing over 30 research published articles
- **Duke University - Research in 3D printed helicopter rotor system** **Durham, North Carolina**  
*Independent study research under Dr. Lawrence Virgin's supervision (l.virgin@duke.edu)* *August 2018 - December 2018*
  - Designed and 3D printed the rotor blades of a helicopter model using NACA 0012, rectangular and elliptical blade cross sections
  - Performed torsion and bending tests on the rotor blades in order to analyze which cross sectional shape yields the lowest bending stiffness and highest torsional stiffness
  - Conducted laser displacement measurement and data analysis to obtain a NACA 0012 cross section as best fit

# Leadership

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- **Duke University - FSAE Motorsports Team** **Durham, North Carolina**  
*Powertrain subsystem leader, Dr. Rebecca Simmons' supervision (rebecca.simmons@duke.edu)* *May 2017 - Present*
  - Prepared Duke University's Formula SAE car for competition at Michigan International Speedway
  - Developed and manufacture vehicle's engine components including: exhaust, intake, fuel lines, and cooling systems by performing CAD modeling, GTPower analysis, dynamometer testing, fuel flow and spark timing tuning for higher Brake Torque and Brake Power
  - Implemented new cooling system intended to decrease car radiator size and car weight by 1.5kg
  - Performed fundraising presentations and communicate with sponsoring companies in order to enable the usage of high performance equipment
- **The Eastern European Association at Duke** **Durham, North Carolina**  
*President* *December 2016 - Present*
  - Managed the money used in events and activities and implement new management organizational structure
  - Publicized the organization to new Eastern European students at Duke and organized and managed events that promote the traditions of Eastern European countries such as Romania, Serbia or Croatia

# Work Experience

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- **Duke University - Engineering Department** **Durham, North Carolina**  
*Teaching Assistant* *August 2017 - December 2017*
  - Evaluated and graded 35+ student projects performed in MATLAB and LATEX
  - Guided students during office hours by going over homework and lab assignments and answering questions relevant to the material presented in class
- **Duke University - Mathematics Department** **Durham, North Carolina**  
*Teaching assistant* *January 2017 - May 2017*
  - Evaluated 30+ students' tests and homework
  - Explained mathematical calculus problems to students from different majors
  - Coordinated mathematics lectures to a class of freshman students

# Honors and Awards

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- **Duke University - Pratt School of Engineering** **Durham, North Carolina**  
*Graduation with Departmental Distinction*
- **Duke University - Pratt School of Engineering** **Durham, North Carolina**  
*Fall 2016 & Fall 2019 Dean's List*

# Publications and Presentations

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- **The American Society of Mechanical Engineers** **Salt Lake City, Utah**  
*International Mechanical Engineering Congress and Exposition 2019 (IMECE 2019)* *November 2019*
  - Cimpuiaru M. , Kielb R. 'LASCAD: Flutter Investigation in Compressor Linear Cascade', presented to *International Mechanical Engineering Congress and Exposition*, Salt Lake City, Utah, 2019;
- **Rice University** **Houston, Texas**  
*Gulf Coast Undergraduate Research Symposium 2019 (GCURS 2019)* *November 2019*
  - Cimpuiaru M. , Kielb R. 'LASCAD: Flutter Investigation in Compressor Linear Cascade', presented to *Gulf Coast Undergraduate Research Symposium*, Houston, Texas, 2019;