



Maria CASAPU (DEMŞA)

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(Work)

WORK EXPERIENCE

DEPARTMENT OF INTEGRATED AIRCRAFT SYSTEMS AND MECHANICS, MILITARY TECHNICAL ACADEMY FERDINAND I – BUCHAREST, ROMANIA

LECTURER – 30/09/2024 – CURRENT

- Design and deliver lectures and seminars for undergraduate courses - Propulsion Systems, Theory of Jet Engines, Design and construction of jet engines, Automation and control of jet engines, Mechanics.
- Develop and update curriculum content to reflect the latest advancements in Aerospace Engineering - Jet engine design.
- Supervise undergraduate projects, providing academic guidance and mentorship.
- Conduct independent and collaborative research.

ENSTA – BREST, FRANCE

INVITED RESEARCHER – 02/05/2025 – 04/07/2025

- Numerical modelling behavior of carbon-fiber reinforced composites under laser-induced shockwaves

MILITARY TECHNICAL ACADEMY FERDINAND I – BUCAREST, ROMANIA

SPECIALIST OFFICER AT THE AEROSPACE TECHNOLOGIES AND SYSTEMS LABORATORY / AEROSPACE ENGINEER – 07/2017 – 29/09/2024

- Conduct laboratory sessions, and facilitate discussions to enhance students' understanding of aerospace concepts.
- Supervise and mentor students involved in aerospace engineering projects.
- Ensure the availability of necessary equipment, materials, and resources for effective teaching and research.
- Oversee/perform the maintenance and calibration of laboratory equipment, ensuring functionality and accuracy.
- Contribute to the continuous improvement of laboratory facilities and resources.
- Lead or contribute to research projects
- Conduct experiments, simulations, and analysis to advance knowledge in the aerospace field.
- Collaborate with the laboratory's team to achieve research goals.
- Prepare detailed technical reports, documentation, and presentations summarizing research findings.

DEPARTMENT OF INTEGRATED AIRCRAFT SYSTEMS AND MECHANICS, MILITARY TECHNICAL ACADEMY FERDINAND I – BUCHAREST, ROMANIA

HEAD OF LABORATORY (TEMPORARY ASSIGNMENT) – 15/07/2024 – 29/09/2024

Stepped into the role of Head of Laboratory on a temporary basis, assuming full responsibilities during the absence of the regular staff member who was on leave.

- Oversee the day-to-day operations and activities of the laboratory.
- Develop and implement policies and procedures to ensure the efficient functioning of the laboratory.
- Lead and/or contribute to ongoing research projects within the laboratory.
- Manage budgets and resources effectively.
- Oversee the maintenance and calibration of laboratory equipment.
- Ensure the availability of necessary resources and facilities for teaching and research activities.
- Communicate research findings through presentations, reports, and publications.
- Contribute to the educational mission of the university by teaching relevant courses.
- Provide training and mentorship to graduate students and researchers.
- Develop and execute a long-term strategic plan for the laboratory in alignment with the university's goals.



HEAD OF LABORATORY (TEMPORARY ASSIGNMENT) – 20/12/2023 – 19/06/2024

Stepped into the role of Head of Laboratory on a temporary basis, assuming full responsibilities during the absence of the regular staff member who was on leave.

- Oversee the day-to-day operations and activities of the laboratory.
- Develop and implement policies and procedures to ensure the efficient functioning of the laboratory.
- Lead and/or contribute to ongoing research projects within the laboratory.
- Manage budgets and resources effectively.
- Oversee the maintenance and calibration of laboratory equipment.
- Ensure the availability of necessary resources and facilities for teaching and research activities.
- Communicate research findings through presentations, reports, and publications.
- Contribute to the educational mission of the university by teaching relevant courses.
- Provide training and mentorship to graduate students and researchers.
- Develop and execute a long-term strategic plan for the laboratory in alignment with the university's goals.

 **ENSTA BRETAGNE – BREST, FRANCE**

ERASMUS INTERNSHIP – 31/03/2019 – 29/06/2019

Project: Dynamic characterization of fiber-reinforced composite materials

Coordinating professor: Michel Arrigoni

Field: numerical methods, shock waves generated by laser impact, composite materials

 **DEPARTMENT OF INTEGRATED AIRCRAFT SYSTEMS AND MECHANICS, MILITARY TECHNICAL ACADEMY FERDINAND I – BUCHAREST, ROMANIA**

HEAD OF LABORATORY (TEMPORARY ASSIGNMENT) – 15/03/2023 – 15/09/2023

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- Oversee the day-to-day operations and activities of the laboratory.
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- Provide training and mentorship to graduate students and researchers.
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 **ECOLE ROYALE MILITAIRE – BRUXELLES, BELGIUM**

ERASMUS INTERNSHIP – 08/2015 – 12/2015

Project: Simulation in a Matlab environment of fluid interaction - structure

Coordinating Professor: Rob Haelterman

Domain: numerical methods, CFD

● **EDUCATION AND TRAINING**

2020 – 2023 Brest, France

PHD - COTUTORSHIP ENSTA Bretagne

Field of study Mechanics of Solids, Materials, Structures and Surfaces |

Thesis Study of the mechanical response of ply-level hybrid composites under quasi-static and dynamic loadings

10/2019 – 2023 Bucharest, Romania

PHD - COTUTORSHIP National University for Science and Technology Politehnica Bucharest

Field of study Aerospace Engineering |

Thesis Study of the mechanical response of ply-level hybrid composites under quasi-static and dynamic loadings

Field of study Aerospace Systems Engineering

- Aerospace engineering
- Jet engines
- Aircraft Structures

Field of study Aerospace Engineering

● **LANGUAGE SKILLS**

Mother tongue(s): **ROMANIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	B2	B2	B2
FRENCH	B1	B2	B1	B1	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● **SKILLS**

Catia v5 | ANSYS Workbench | MATLAB+Simulink | Mathcad | Good knowledge of Microsoft Office

● **PUBLICATIONS**

2024
[Reducing the Maximum Amplitudes of Forced Vibrations of a Quadcopter Arm Using an Aerodynamic Profile Adapter](#)

Andra Tofan - Negru, Amado Ștefan, Maria Casapu, *Reducing the Maximum Amplitudes of Forced Vibrations of a Quadcopter Arm Using an Aerodynamic Profile Adapter*, Drones (2024)

2024
[Laser-induced shockwaves for damage assessment and characterization at high strain rates in the fiber direction of unidirectional composites](#)

Maria Casapu, Alexandru Cătălin Casapu, Michel Arrigoni, Ion Fuiorea, *Laser-induced shockwaves for damage assessment and characterization at high strain rates in the fiber direction of unidirectional composites*, Materials Letters, 136083 (2024)

2024
[Damage assessment through cyclic load-unload tensile tests for ply-level hybrid carbon fiber composites](#)

Maria Casapu, Ion Fuiorea, Michel Arrigoni, *Damage assessment through cyclic load-unload tensile tests for ply-level hybrid carbon fiber composites*, Express Polymer Letters, 18, 1, 41-60 (2024)

2023
[Off-axis response and shear characterization of unidirectional ply-level hybrid carbon-fiber-reinforced polymer materials](#)

Maria Casapu, Michel Arrigoni, and Ion Fuiorea, *Off-axis response and shear characterization of unidirectional ply-level hybrid carbon-fiber-reinforced polymer materials*, INCAS BULLETIN, **15**, 3, 31-46 (2023).

2023

Experimental Characterization of Internal Structure and Physical Properties of Unidirectional Ply-Level Hybrid Carbon Composite Material

Maria Casapu, Ion Fuiorea, Michel Arrigoni, *Experimental Characterization of Internal Structure and Physical Properties of Unidirectional Ply-Level Hybrid Carbon Composite Material*, Advanced Engineering Materials, 25: 2201447 (2023)

2019

Preliminary design of aeroelastically tailored wing box structures with bend-twist coupling

Mihai Mihaila-Andres, Paul-Virgil Rosu, Ciprian Larco, Maria Demsa, Lucian Constantin and Radu Pahonie, *Preliminary design of aeroelastically tailored wing box structures with bend-twist coupling*, ITM Web Conf., 24, 02010 (2019)

● **CONFERENCES AND SEMINARS**

03/07/2022 – 07/07/2022 Florence, Italy

15th International Conference on Advanced Computational Engineering and Experimenting – ACEX2022

"Experimental characterization of internal structure and physical properties of unidirectional ply-level hybrid carbon composite material", Casapu M., Fuiorea I., Arrigoni M.

● **PROJECTS**

2024 – CURRENT

Pollutant emissions and fuel consumption reduction in Diesel engines which equip the ships of the Romanian Naval Forces

Project within PNCDI - PN-IV-P6-6.3-SOL-2024-2-0314

- Team member

2024 – CURRENT

Hydrogen Aircraft Sloshing Tank Advancement (HASTA)

Funded by the European Union. HASTA -101138003

- Team member

2020 – 2022

Miniaturized onboard platform for optical sensor stabilization

Project within PNCDI - PN-III-P2-2.1-PED-2019-5340I

- Team member

2020 – 2020

Development of prototypes of ventilators with parameters adapted to assist patients infected with the SARS-CoV-2 virus

Project within PNCDI - PN-III-P2-2.1-SOL-2020-2-0337

- Team member

2020 – 2020

Solutions and systems for monitoring and aerial work activities for the support of the public health system in the COVID-19 pandemic case using UAS systems

Project within PNCDI - PN-III-P2-2.1-SOL-2020-2-0329

- Team member

01/2018 – 12/2018

Study on the formation and prevention of icing

Project within the Sectoral Research and Development Plan of the Ministry of National Defense in Romania - PSCD 107/2018

- Project director

2017 – 2020

Developing and implementing modern solutions related to propulsion systems for gas turbines and their associated systems

Project within PNCDI - PN-III-P2-2.1-SOL-2016-04-0064

- Team member

● EMPLOYMENT-RELATED SKILLS

Tutoring skills

I taught seminar and laboratory classes held at different specializations in the Military Technical Academy Ferdinand I in Bucharest:

- Mechanics: Statics and Dynamics
- Theory of Jet Engines
- Design and Construction of Jet Engines
- Automation and Control of Jet Engines

Organizational skills

- coordinate activities that are held within the laboratory
- project manager of a research project

Leadership skills

- managing and guiding teams under my supervision, ensuring the achievement of goals within the laboratory
- coordinate and supervise classes of students

Teamwork skills

- developed by working in research project teams

Time management skills

- developed by managing overlapping activities from different work areas: seminar classes, administrative tasks, research projects

Research skills

- Writing scientific articles, project reports
- Research activity

Data management

- collect, organize and analyze data