



Ricardo Fitas

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Website: <https://www.youtube.com/channel/UChytsGUJWO4gVvy-clvhpyg>

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WORK EXPERIENCE

Technical University of Darmstadt – Darmstadt, Germany

Research Associate

[01/07/2023 – Current]

Supervised 8 MSc/BSc theses; Collaborated with industry partners on applied research projects; Conducted multi-objective optimization of corrugated board structures; Developed graph-based methods for analyzing corrugated boards; Authored 2 competitive research proposals; Published 10+ academic papers, including 3 in Q1 journals and 1 in a leading field-specific journal (TAPPI).

Technical University of Munich – Munich, Germany

Research Associate

[01/10/2022 – 31/03/2023]

Simulation of industrial components using Simulink; Data Mining manufacturing use case using Python; Responsible for a project of MATLAB/Simulink simulation of a Robot-like system; Responsible for the data mining-related lectures.

SPACIS - BEXUS Program – Porto, Portugal

Mechanical Engineer

[01/07/2022 – 30/10/2022]

Designing mechanical components; Solving mechanical engineering-related issues concerning the project; Simulations and lab experiments; Oriented by the professors of the DEEC - FEUP in Portugal + orientation in Germany and Sweden.

Porto Space Team – Porto, Portugal

Founder

[01/06/2022 – 30/10/2022]

Porto Space Team aims to be a group for development and research on topics related to Space and to be an opportunity for collaboration. Responsibilities: to create conditions for the students to do Space-related activities as a first-time experience; to supervise and ensure the coordination between departments exists; to plan and ensure the execution of the tasks. Achievements: more than 90 students interested in Space engaged in the team; 2 main projects; more than 4 main partners; formation of more than 15 departments.

INEGI – Porto, Portugal

Master Thesis Fellow

[01/04/2022 – 30/09/2022]

During my fellowship, I have been able to perform algorithmic development of optimization approaches based on Particle Swarm Optimization and its hybridizations in Fortran and Python, in order to solve multi-objective optimization problems. The following is

a list of tasks I am currently working on: 1. a literature review paper concerning optimization algorithms and recent applications in composite structures; 2. papers concerning a novel methodology of applying PSO based on the concept of elitism; 3. papers concerning hybridization approaches of hybridization techniques.

 **IEEE UP Student Branch – Porto, Portugal**

Student Member / Vice-Chair

[01/10/2017 – 31/07/2022]

At the beginning of my newbie phase in the IEEE UP Student Branch, I did some volunteering activities and helped my colleagues in the preparation of workshops and conferences. Also, I was the lecturer of some MATLAB workshops inside and outside of the University of Porto.

I was also a participant in the TISP program. It consists of going to middle and high school to present the activities which are usually done at the University of Porto, especially related to Engineering courses. Aiming to encourage those students to gain interest in technology, programming activities, and games were done in those activities.

During this period, I was responsible for assisting Student Branch members with tasks related to IEEE, including debating issues concerning the COVID-19 pandemic, online interaction, and more general topics. I was the coordinator of the second "Fire Department" event of 2020/21, where students joined to help each other with their academic projects and studying for the exams. This edition had +111% of participating students (74) compared to the previous edition (35).

During the academic year 2021/22, I was responsible for coordinating the TISP program of IEEE UP SB, with the following numbers (variation in parentheses related to previous records of the program):

- Organization of more than 17 activities (+183%);
- Collaboration with more than 12 schools (+100%);
- Participation of a total of 13 IEEE UP SB students (+63%);
- A total attendance of more than 800 elementary- and high-school students (+718%);
- A first-time collaboration between TISP and a research lab.

All the numbers mentioned above are an all-time record. Some organizational difficulties occurred, not only due to COVID-19 but also due to the late start of academic activities.

 **University of Porto – Porto, Portugal**

Monitor - Junior University

[01/07/2022 – 15/07/2022]

As a monitor of the Junior University program, I am responsible for a hands-on activity for two weeks for High-School students related to IoT

 **WZL der RWTH Aachen – Aachen, Germany**

Project Thesis

[01/03/2021 – 30/10/2021]

The goal of this project thesis was to develop an accurate prediction model for fine-blanking workpiece quality feature, the die roll, and to investigate the relationship of force signals to the resulting quality of the workpieces. Next to the shearing surface quality, the die-roll width and depth are one of the main quality issues in components produced in a fine blanking process. The data used in this work is obtained from four experiments executed on a fine-blanking press equipped with sensors to acquire the three important process forces, namely punch force, counter-punch force and blank-holder force.

 **Institut für Textiltechnik of RWTH Aachen University – Aachen, Germany**

Research Intern

[30/09/2020 – 30/03/2021]

Application of Particle Swarm Optimisation techniques and comparison to optimize the starting point of a Kinematic Draping Simulation. Improving code and using Parallel Computing were demanded in this task. A User Interface was created to assist the use and visualization of these techniques. It was used MATLAB 2020b.

 **Bosch Termotechnology, S.A. – Aveiro, Portugal**

Address: Estrada Nacional 16, Km 3,7, Cacia, 3800-533 Aveiro (Portugal)

Trainee

[30/06/2019 – 19/09/2019]

Acquisition of case studies of Gas Water Heater users:

- Treatment of the behaviour of GWH based on data (temperature, flow) collected from data loggers application; MATLAB scripts interpretation and computational optimization.

- Analysis and correction of procedures for Durability laboratory.
- Matlab GUI interfaces creation for uniformization for scripts usage.
- Data logger assembly: flow meters, hydraulic components, temperature sensors.
- Test request improvement for Durability laboratory, based on proceeding standard configurations.

 **INEGI - LAETA** – Porto, Portugal

Research Fellow

[05/2018 – 12/2018]

- algorithm development in MATLAB for Doppler images segmentation;- information treatment and mathematical formulation to automate selection and reconstruction processes to images.

EDUCATION AND TRAINING

Project Management Professional (PMP)® Candidate

Project Management Institute [01/01/2026 – Current]

CIPP/E Candidate

IAPP [01/01/2026 – Current]

Micromaster's in Supply Chain Management

Massachusetts Institute of Technology (MIT) [01/2024 – 12/2025]

Visiting Student - Topology Optimization

DTU - Technical University of Denmark [10/06/2025 – 17/06/2025]

City: Copenhagen | Country: Denmark

Micromaster's in Statistics and Data Science

Massachusetts Institute of Technology (MIT) [01/04/2023 – 30/11/2024]

Integrated Master in Mechanical Engineering (MIEM)

University of Porto [17/09/2017 – 31/07/2022]

City: Porto | Country: Portugal

Branch of Structural Engineering and Machine Design

Erasmus+

RWTH Aachen University [30/09/2020 – 30/09/2021]

LANGUAGE SKILLS

Mother tongue(s): Portuguese

Other language(s):

English

LISTENING C2 READING C2 WRITING C2
SPOKEN PRODUCTION C1 SPOKEN INTERACTION C2

French

LISTENING B1 READING B2 WRITING A2
SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2

Spanish

LISTENING C1 READING B2 WRITING B1
SPOKEN PRODUCTION B1 SPOKEN INTERACTION B2

German

LISTENING A2 READING B1 WRITING A2
SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2

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

SKILLS

Programming Languages

Proficient User of MATLAB / Python / C/C++ / VBA coding (Microsoft Excel) / Fortran / GitHub/GitLab / Orange (Software)

CAD/CAE

SolidWorks (Intermediate) / Basic AutoCad / Abaqus / 3D Print Slicing with Ultimaker Cura

Microsoft Office + Writing

Microsoft Excel / Microsoft Publisher / Microsoft Word / Microsoft Powerpoint / Quillbot / Outlook / Overleaf / Grammarly

PROJECTS

Publications + Projects Google Scholar: <https://scholar.google.com/citations?user=r70Opz0AAAAJ&hl=en&oi=ao>

- Generative AI with Diffusion Models NVIDIA (2025);
- Session Chair ICDTDE2025 (MSCA RISE);
- Technical Program Committee Member, ICDDS (2025);
- European Space Agency Concurrent Engineering Cubesats Workshop (2022);
- European Space Agency Training Course Student (2021);
- Volunteer in ICPC Finals 2019;
- ESA SpaceTalks Organization Team in FEUP (2018);
- Mentoring programs: FEUP (2018/2019), Calouste Gulbenkian Foundation (2019), High School (2016/2017);
- VALEUR - Vivre la diversité dans le respect mutuel en Europe - Speaker (2011).

HONOURS AND AWARDS

Honours and awards

- Scholarship from Calouste Gulbenkian Foundation by merit (2017-2022);
- IEEE Presidential Leadership Coin (2018);
- Medalist in Taekwondo National Championships (2012-2017);
- Finalist of the Portuguese Mathematical Olympics (2013).

RECOMMENDATIONS

Name: Paulo Tavares de Castro | Emeritus Professor

Paulo M. S. T. de Castro, Emeritus Professor at the Faculty of Engineering of the University of Porto (FEUP) recalls my active participation in IJUP events organized by the University of Porto Rectorate and observed, based on my scientific output, a diversified research activity with results.

Email: ptcastro@fe.up.pt

Name: Stamatios Papadakis | Assistant Professor

Stamatios Papadakis, Assistant Professor at the University of Crete, is a book editor (Springer; IGI Global); editorial collaboration on my chapters: "Leveraging AI in education: benefits, responsibilities, and trends" and "Neuro-symbolic AI for Personalized and Equitable Virtual Tutoring in Education."

Email: stpapadakis@uoc.gr