Edgard Moreira Minete, M.Sc.

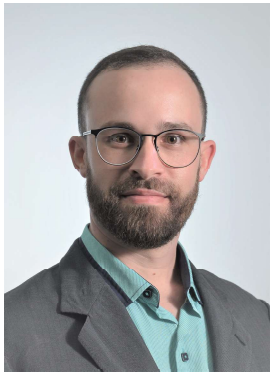
Nationality: Brazilian, Italian

Webpage: edgmin.github.io

Address: Johannisstr. 79, 90419, Nuremberg, Germany

E-mail: edgardmminete@gmail.com

Phone: (+49) 0174 8005375



Education

10.2017 - 09.2021 **M.Sc. in Computational Sciences in Engineering**, *TU Braunschweig*, Germany
Focus: Numerical methods for ODEs and PDEs, fluid mechanics, machine learning

03.2010 - 07.2017 **B.Sc. in Mechanical Engineering**, *UFES*, Brazil
Focus: Technological control of industrial processes

Research Experience

08.2022 - Ongoing **Researcher**, *LGT - FAU Erlangen-Nürnberg*, Germany

- Translation from TensorFlow to PyTorch and further development of a neural network to solve the highly nonlinear inverse problem of predicting stress-strain curves and mechanical properties of aluminum alloys from multi-fidelity FEM simulation and experimental depth-sensing indentation data

11.2019 - 07.2022 **Research Assistant**, *IfN - TU Braunschweig*, Germany

- Implemented a corruption & adversarial attack tool and a SNR/PSNR-based Gaussian noise generator for assessing the robustness of semantic segmentation deep neural networks (DNNs)
- Improved an existing approach for domain mismatch estimation by exploiting multitask learning (with GANs and autoencoders) and distinct reconstruction losses
- Extensively trained and evaluated diverse semantic segmentation DNNs (ERFNet, DeepLabv3+ SwiftNet, ENet) on a remote GPU cluster

07.2018 - 12.2021 **Research Assistant**, *ifs - TU Braunschweig*, Germany

- X-ray CT data acquisition and post-processing with Python and Matlab
- Advanced analysis and processing of 3D mesh data using discrete differential geometry and smoothing techniques in Matlab
- Developed a Matlab application for the semantic segmentation and automatic measurement of weld beads
- Implemented DFLUX subroutines with Abaqus FEA solver to investigate multifocal aluminum beam welding

10.2020 - 09.2021 **Visiting Researcher - Master Thesis**, *CV & AI Group - TU Munich*, Germany

- Developed a methodology for understanding the design process of DNNs
- Mapped 20 design solutions for recurring problems in the design process of DNNs
- Developed a state-of-the-art unsupervised deep domain adaptation approach for the VisDA-2017 image dataset

Teaching Experience

10.2021 **Guest Lecturer**, *Multivix College*, Brazil
Presented one lecture in computational fluid mechanics for undergraduate students

05.2010 - 07.2010 **Teaching Assistant**, *IFES*, Brazil
Led the welding lab practices for a cohort of 20 undergraduate students

Fellowships and Grants

07.2013 - 08.2014 **Science Without Boarders**, *Capes/Brazilian government*
€ 870.00/mo for 15 months, € 4,732.00 travel/setting-in allowance

Further Education

07.2013 - 08.2014 **Study Abroad**, *WH Zwickau*, Germany
Visiting student of the M.Sc. in Automotive Engineering and Management

03.2009 - 12.2010 **Mechanical Training**, *IFES*, Brazil
Focus: Technological control of industrial processes

Employment History

12.2015 - 07.2017 **Internship**, *Tecvix DI*, Brazil
Finite element and finite volume simulations of oil well centralizers and pumps

09.2014–02.2015 **Internship**, *Audi AG*, Germany
Robotic welding, destructive testing, and metallographic inspection of steel alloys

Computer Skills

Programming	Python, Matlab, C/C++, LaTeX, Fortran
Frameworks	PyTorch, TensorFlow (Keras)
Others	HPC, Git, Jupyter Notebook, OpenFoam, Abaqus, Ansys, Microsoft package

Communication Skills

Portuguese	Native speaker
English	Professional working proficiency (C1)
German	Professional working proficiency (C1)
Italian	Elementary proficiency (A2)