Tiago Rodrigues | Additive manufacturing specialist | Data Scientist

I am a highly motivated individual, holding an MSc and PhD in Mechanical Engineering. In addition, I possess a post-graduation in Data Science and Analytics. My career goal is to bridge the gap between traditional engineering and emerging technologies, leveraging my skill set to contribute to cross-disciplinary projects, while developing new skills.

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📍 Portugal, Lisbon   🎂 8 September 1995   ⬡ github.com/TiagoRodrigues66

G scholar.google.com/citations?user=pu2krxEAAAAJ&hl   (20 peer review papers and 1 patent)

💼 Working Experience

Additive Manufacturing Researcher at Instituto Soldadura e Qualidade, Portugal (Out/2023- Present)

Technologies: Kuka/ABB robots, Fronius plasma arc welding machine

Metal Additive Manufacturing specialist at Caracol SRL, Italy (Set/2023 – Out/2023)

Designed prototypes of an end-effector to be integrated into a robotic arm. The robotic arm would be used for printing 3D metal components manufactured using wire and arc additive manufacturing. Implemented architecture and sensors in the manufacturing process.

Technologies: Autodesk Inventor

Data Scientist at Caixa Geral de Depósitos, Portugal (Set/2022 – Set/2023)

Led end-to-end development and monitoring of advanced machine learning models on diverse, large, and imbalanced datasets. Managed the entire ML model lifecycle, encompassing data engineering, ETL, pipelines, and data modeling. Specialized in feature engineering, validation, and assessment, with a focus on post-production tasks such as monitoring, re-training, reengineering, and model management. Collaborated within an agile, cross-functional team

Technologies: Python, Spark, SQL, Mlflow, HDFS, HIVE

PhD Student at FCT-NOVA, Portugal (Jan/2020 – SEt/2022)

Designed and fabricated manufacturing prototypes to improve the characteristics of Wire and Arc Additive Manufacturing components. Developed laboratory resources, including a multi-wire Gas Tungsten Arc Welding (GTAW) torch for functional gradient components, two prototypes for ceramic particle integration into the molten pool in a customized Gas Metal Arc Welding (GMAW) torch. Employed diverse characterization techniques for the prototype-made samples. Additionally, supervised five master's students during this period

Technologies: Python, Solidworks, Matlab, Labview

Processes: Additive manufacturing, wire and arc additive manufacturing, GMAW, GTAW, Milling , FDM 3d printing

Research Assistance at FCT-NOVA, Portugal (Set/2018 – Dec/2019)

Researcher in the project FIBR3D – 03/SAICT/2015 – Develop and validate nondestructive technique to inspect additive manufacturing parts based on hybrid processes for producing long or continuous fiber-reinforced polymeric matrix composites

Technologies: X-ray, Eddy current, dye penetrant, Electrical conductivity measurements (4-point probe), Ultrasound

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💼 Working Experience

Assistance at the laboratories of Industrial Technology, FCT-NOVA, Portugal (Feb/2017 – Jun 2018)

Assisting in the practical laboratory classes, and supporting master and doctoral students in their research projects

Internship at Mecolar – Mecânica e Condicionamento de ar (Feb/2016 – Apr/2016)

Maintenance and installation of Chillers, UTA'S, air conditioning, compressors, and cooling towers

🎓 Education

Ph.D. in Mechanical Engineering (Jan/2020 – Set/2022)
FCT NOVA (Final Grade: Approved)

Postgraduate Program in Enterprise Data Science & Analytics (Jan/2021 – Jan/2022)
Faculty of Information Management School, NOVA University Lisbon (Final Grade: 17/20)
Technologies: Python, SQL, PySpark, PowerBi, Keras, Tensorflow , Machine learning, Image Classification

MSc in Mechanical Engineering (2016-2018)
Faculty of Sciences and Technology, NOVA University of Lisbon (Final Grade: 17/20)

BSc in Mechanical Engineering (2013-2016)
Faculty of Sciences and Technology, NOVA University of Lisbon (Final Grade: 14/20)

💬 Languages

Portuguese - Native
English - Professional
French - Basic
Italian - Basic

Others

U Udemy course: Python From basic to advanced

KUKA KUKA Programming level 1, Software KSS 8.x (KR C4 / KR C5

Materials

Nickel Alloys (Inconel 625), High Strength Low Alloy Steel (ER110S-G and ER120S-G),Stainless Steel (AISI 316L), Copper Alloy

Programming Language

Python (NumPy, Scikit-learn, TensorFlow, Keras , Pandas), SQL, Matlab, Spark , Labview

3D CAD

Solidworks both 2D and 3D (with certificate), Autodesk Inventor, Solidcam, Cura , Synera

Manufacturing processes

Wire And Arc Additive Manufacturing, Gas Metal Arc Welding, Gas Tungsten Arc Welding, Selective Laser Melting, subtractive technologies (Milling and turning both manually and via CNC), Welding, FDM printing

Materials Characterization

Optical microscope, Scanning electron microscopy (SEM), energy dispersive X-ray spectroscopy (EDS), Synchrotron X-ray diffraction (SXRD), Electron Backscatter Diffraction (EBSD), Uniaxial tensile testing, Charpy-V, Hardness testing, Digital Image correlation

Other softwares

Power Bi, Microsoft Office,ThermoCalc, PowderCell, HighScore, XRD analysis, Cloudera hadoop