Position Offered: PREDOCTORAL RESEARCHER

Project: Application of machine learning in the optimization of inks and 3D designs of ceramic materials obtained by direct ink writing (robocasting)

Technological and scientific fields: Artificial intelligence, advanced data analytics, 3D printing and additive manufacturing, novel materials, data analysis and integration, image analysis and computer vision.

Location: Cantoblanco, ICV-CSIC, Madrid, Institute of Ceramics and Glass https://www.icv.csic.es/

Group/PI: Research Technical Ceramics Cristina Maglione, Group, Ramírez http://www.gct.icv.csic.es/es/home/

PROJECT SUMMARY

The Technical Ceramics Group (GCT) of the Institute of Ceramics and Glass offers a research contract for the completion of a doctoral thesis in the application of machine learning (ML) in the optimization of the 3D printing process of ceramic materials by robocasting. The group is looking for a physics, engineering, mathematics (or related fields) graduate to develop a multidisciplinary training program that includes completing a master's degree in ML, in combination with experimental activities in the fields of processing and characterization of ceramic materials and 3D printing. ML algorithms will be developed for the optimization of 3D printing inks and image analysis methods will be used to correlate printed structures with their properties. The TCG has a recognized track record in the design and manufacturing of 3D ceramic materials as well as composite materials with carbon nanostructures through DIW.

PROFESSIONAL PROFILE

Minimum requirements:

-Degree in Physics, Engineering, Mathematics or Artificial Intelligence, with high motivation in the application of data analytics in Materials Science and Engineering. -Proficiency in English (preferably level B2)

Merits to be considered:

Knowledge in Python, R, C++, Java, data analytics, modelling, artificial intelligence, machine learning, as well as experience in laboratoty tasks will be valuable.

WHAT IS OFFERED

This project provides the opportunity to develop a scientific career in two novel areas of knowledge, such as machine learning and 3D printing, with a great projection on the current and future needs of the R&D and industrial production sectors. The researcher will cover a program of 240 ECTS, focused on completing a master's degree in ML, specific courses in data analytics, 3D printing and materials science, and on the achievement of research capabilities that lead to obtaining the doctorate degree. This program will allow the development of specific research activities in national and international centers of recognized prestige through short stays.

Contract conditions:

Predoctoral Researcher contract of 4 years' duration. Gross annual salary of 23,871.33 €.

Start of contract: before 31 December 2024

PRINCIPAL INVESTIGATOR CONTACT

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