

Vacancy: Research Positions in Advanced Medical Image Analysis

Project Description

We are glad to announce the launch of a new research project based on the collaboration between the *Mathematics and Data Science* ([MADS](#)) research group at Vrije Universiteit Brussel (VUB) and the *Centre for Reproductive Medicine* at UZ Brussel ([Brussels IVF](#)). This project aims at helping the field of assisted reproductive technology (ART) by developing innovative AI-driven frameworks for the analysis of high-dimensional oocyte/embryo images. By integrating advanced deep learning and mathematical modeling, we seek to investigate, understand and potentially improve decision-making in ART procedures. The ultimate objective of this interdisciplinary research is to push the boundaries of current reproductive treatment, potentially offering new insights and tools for clinicians.

Open Positions

We are opening the following research positions in Digital Mathematics (DIMA), a research group chaired by Prof. Ann Dooms from MADS, VUB.

1. **Post-doctoral Researchers** (2 vacancies)

- Focus Area: Advanced deep learning and machine intelligence for medical image analysis.
- Duration: Full-time position for 2 years (with possibility for extending to 30 month). Starting from 1st September 2024.
- Key Responsibilities:
 - Conceptualize, develop and implement deep learning and mathematical modeling algorithms for analyzing high-dimensional medical images.
 - Collaborate with embryologists and clinicians to integrate biological motivations into AI models.
 - Publish research findings in high-impact journals and present at conferences.
- Requirements:
 - PhD in Applied Mathematics, Computer Science, Electrical/Electronic/Information Engineering, or related fields.
 - Strong background in deep learning, machine learning, computer vision and image processing.
 - Proven track record of publications in top-tier conferences and journals.
 - Excellent programming skills in Python/MATLAB and rich experiences with deep learning frameworks (e.g., PyTorch).
 - English as official working language.

2. Doctoral Candidate (1 position)

- Focus Area: Mathematical modeling and machine learning for image analysis.
- Duration: Full-time for 3 years (with possibility for extending to 4 years). Starting from 1st August 2024.
- Key Responsibilities:
 - Develop mathematical models to assist/enhance AI-driven (e.g., deep learning based) image analysis.
 - Work closely with embryologists and post-doctoral researchers to integrate these models into the overall framework.
 - Data collection, preprocessing, and annotation.
 - Contribute to writing research papers and project reports.
 - Obtain a PhD diploma following the regulations of VUB.
- Requirements:
 - Master's degree in (Applied) Mathematics, Computer Science, Electronic and Information Engineering, or related fields.
 - Strong analytical and problem-solving skills, being able to conduct independent research and development with strong self-motivation.
 - Experiences with mathematical modeling, machine learning and computer vision.
 - Proficiency in programming languages such as Python or MATLAB.
 - English as official working language.

How to Apply

If you are a highly motivated individual with a passion for advancing medical technology through AI and mathematical modeling, we encourage you to apply. Please send your CV and a cover letter detailing your research experience and interests to Prof. Ann Dooms (Ann.Dooms@vub.be) and Prof. Tan Lu (Tan.Lu@vub.be).

All applications must be sent before 1st July 2024.