

Postdoc position:

Photo-Realistic, Physics-Aware 4D Human Modeling for Real-World Human Cognition by Care-Robots for Aged People

Hosting institute

[ICube Laboratory](#) (Le laboratoire des sciences de l'ingénieur, de l'informatique et de l'imagerie : The Engineering science, computer science and imaging laboratory) at the [University of Strasbourg](#) is a leading research center in Computer Science, with more than 300 permanent researchers, with the recently opened AI graduate school supported by the French government.

Work place, salary, starting date

Work place: The project will take place in [MLMS](#) (Machine Learning, Modélisation & Simulation) research team located at the hospital site of the laboratory. It is located at a 10 min walking distance to the heart of the Strasbourg city center, a UNESCO world heritage site.

Salary: 2 675,28 €/month gross minimum (depending on the work experience and negotiation, before tax), for a duration of 12 months (with a possible extension to 24 months).

Starting date: January – October 2022.

Context

Within the framework of a bi-national and tri-institutional project¹, we aim to push the current limits of robot vision in human cognition by care-robots in the in-house situation. Our specific goal is to make the performance of the vision-intelligence robust to large variations (in body shapes, motions,..) to occlusion (cloth, furniture, wall,..), and capable of understanding the interaction by developing a photo-realistic, physics-aware 4D human model.

Main responsibilities

Research and development in one or more of the following topics, with possible supervision of a Master2 internship student and/or a PhD student:

- Photo-realistic human modeling: Extension of the geometric human body model with color and illumination.
- Action-conditioned motion prediction/generation model via deep-learning over annotated motion datasets.
- End-to-end 4D human model reconstruction from 2D/3D video input via optimal model fitting.
- Physics-aware human-object interaction: Integration of 4D human model with a PBM and development of interaction motion controller DNNs.

Candidate profile

- PhD in Computer Science, Electronic & Electrical Engineering or in Applied Mathematics (2019 or later).
- Skills in efficient programming, communication, and algorithm design.
- Solid knowledge and experience in deep learning.
- Experience in numerical simulation is a plus.

¹ Real-World Human Cognition by Care Robots (Nov. 2021 - Nov. 2024), Bi-national project (with South Korea) with three institutional partners: CNRS, INRIA and ETRI (Electronics and Telecommunications Research Institute).

Supervisors

[Hyewon Seo](#) (ICube, Univ. Strasbourg), [Frederic Cordier](#) (Univ. Haut-Alsace), and [Stephane Cotin](#) (INRIA Strasbourg).

Application

Submit your application at “Candidate area” from <https://emploi.cnrs.fr/>.