JOB DESCRIPTION

Research Scientist in Optical Modeling

RECRUTEMENT PROFILE

- MSc / Engineer (+ PhD / Postdoc or 2/3 years of experience) in experimental and/or theory/modeling and/or computer engineering of optical properties / physically based image synthesis
- Knowledge of light-matter interactions and of raw materials optical properties
- Know-how of the physically-based modelling and visualization software and their calculation environment
- If possible coupling between experimental and computational aspects
- Interest for cosmetic material, skin and hair

I- AIM OF THE POSITION

The candidate will be responsible for proposing, carrying out and managing scientific research projects and collaborations in the optical domain aiming at understanding our cosmetic targets (hair, skin) and designing new solutions. One of the foremost task of the candidate will be to understand and help translating consumer expectations into technical challenges or raw material specifications through experimental and computational complementary approaches.

II- WORK ENVIRONMENT - RELATIONSHIPS

The candidate will integrate the Physical Simulation Lab in the Advanced Research Division of L'Oreal R&I, under the responsibility of the Lab Manager. This team is in charge of developing and using new research oriented characterization and modelling tools which aims at (1) decoding what should be the optical properties of a cosmetic product applied on skin/hair for a given final performance (2) proposing accordingly new innovative raw materials design or concept (3) characterize the performance of existing raw materials or systems for a better transformation and valorization. All these aforementioned tasks require working in a multidisciplinary environment. The lab is interfaced with clinicians, physicists, chemists, biologists since our approaches are multi-scale from decoding global appearance down into local mechanistic skin / hair targets and propose local solutions to protect, repair or conceal.

The candidate shall be good in unfathoming existing challenges in fundamental technical tasks that can be handled but also in proposing and pushing new concepts arising from its overall expertise.

INTERNAL RELATIONS

- All R&I departments

EXTERNAL RELATIONS

- Worldwide Universities and Research Institutes
- Suppliers or Service providers

III- DESCRIPTION OF THE MAIN ACTIVITIES

- To promote, investigate, implement, use or transfer novel computational methods and experimental tools dedicated to the study of raw material optical properties or the understanding of final cosmetic properties
- To interface existing or to be developed experimental methods with existing or to be developed computational models to contribute to the development of novel knowledge
- To propose and manage partnerships with academics or companies to explore innovative technologies.
- Contribute to the development and training of teams where and when relevant
- Participate to the vision, development and communication of the lab

IV- SKILLS

SCIENTIFIC KNOWLEDGE

- Optical properties of soft matter or particles
- Experimenter and Data analysis
- Modelling scenes and physically based optical simulation tools
- Computational schemes (including HPC)
- Image synthesis and 3D imaging

KNOW-HOW

- Software or domains: MATLAB, MONTE CARLO, RAY TRACING, FDTD, MIE, PHYSICALLY BASED RENDERER (OPTISWORKS), CAO ,IMAGE PROCESSING, FACE/HAIR MODELLING, LINUX NOTIONS

LIFE SKILLS

Capacity to work in a team with people having very different backgrounds (chemistry, physics, physic-chemistry and "Métiers")
Ability to build and maintain a network and to federate people
Ability to design, build and manage scientific projects in close collaboration with internal and external partners
Good communication/reporting skills with the management line and co-workers (experts and non experts)
Scientific rigor, Reliability
To have and share his/her convictions or visions

Open mindness, intellectual curiosity Be proactive and positif !

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