INTERNSHIP OFFER - 1561 (Ref: RI-ISL-CP-faceCapture-4)
Master 2 / Engineering diploma internship

Subject: A deep based approach for photo-realistic extraction of facial 3D model

A deep based approach for photo-realistic extraction of facial 3D model

Robust and precise 3D animation of human faces are key elements in movie production. Our current facial rig extraction tool lets artists automatically extract and animate 3D facial characters (i.e. avatars) from monocular videos. It is based on an unsupervised deep learning auto-encoder that directly estimates the parameters of 3D morphable model.

The goal of the internship is to extend our current tool to produce a more accurate and photo-realistic face reconstruction. The intern will design a deep network extending the current model, taking advantage, for instance, on latest advances in GAN. This work could lead to a scientific publication. Training and evaluation data will be provided.

Skills: Computer vision, optimization, deep learning, python

Keywords: Machine learning, Deep learning, pytorch, facial performance capture

Reference: *Tewari et al, MoFA: Model-Based Deep Convolutional Face Autoencoder for Unsupervised Monocular Reconstruction, ICCV 2017*

Where:
The internship will take place at Interdigital research, Rennes, France. The site was formerly Technicolor research and has been purchased by Interdigital in June 2019. The internship takes place within a collaboration with Technicolor postproduction.

How to apply:
Please send an email to Abdallah.Dib@InterDigital.com and to Cedric.Thebault@InterDigital.com

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SAS au capital social de 15 000 000,00 € | 849 486 279 RCS Paris | France
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Interdigital

Lots of companies bring innovations that improve a single product. At InterDigital, our inventions help improve every product in the markets we participate in, from the most basic to the most advanced, transforming industries and improving products and services that are part of our daily lives.

InterDigital is one of the world's largest pure research, innovation, and licensing companies, with more than 300 engineers around the world. Our focus is on research and development with pervasive impact: mobile technologies that underpin smartphones, networks and services via global standards, and video technologies that are the foundation for today's most popular products and services. Wireless and video – arguably the two most impactful technologies today.

On the wireless side, InterDigital has been a pioneer for four decades, with our engineers designing and developing a wide range of advanced technologies that are used in digital cellular and wireless products and networks, including 2G, 3G, 4G and IEEE 802-related products and networks. Today, we're a leader in 5G research and beyond, a thought leader in our industry and, over the course of the last two decades, the source of more than 30,000 contributions to key global standards.

In video, our existing efforts in key standards have been dramatically expanded with the addition of the Research & Innovation operation of global market leader Technicolor in 2019. With a video R&D heritage spanning decades, while yielding one of the leading innovation portfolios in the industry, what is now InterDigital R&I is a world leader in video research, pioneering new capabilities and making more than 100 contributions to key global video standards. In 2019, the company incorporated a world-class video and AI research team and an established portfolio of video expertise to expand our work in wireless and video technologies and consumer electronics. Our track record of research & development is matched by our fair licensing practices, which are a model for the industry, and our willingness to partner with virtually anybody in developing new capabilities that will improve technology for consumers and businesses around the world.

InterDigital R&I France in Rennes is now the largest InterDigital research center with more than 160 employees and 25 nationalities. Formerly the biggest research center of Technicolor, it has been acquired in June 2019. Our innovations fuel Interdigital's technology, and at the same time our researchers publish papers in the top academic conferences. We actively collaborate with numerous universities around the globe. We welcome post-docs, visiting faculty, PhD students and numerous graduate student interns to come and spend time with us in our lab for periods of time from 3 to 36 months.

Since the acquisition by Interdigital, the Technical Area "Content Processing", the team in which the internship is proposed, is continuing its developments and research with Technicolor as final client.

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