DEEP LEARNING BASED 3D RECONSTRUCTION OF FACE

INNOFAITH

Innofaith beauty science is in the quest of developing the next generation of skin analysis and diagnostic technology and products. At Innofaith we share a mindset of innovative designing and manufacturing of state-of-the-art high-tech scanning and imaging diagnostic solutions. Check us out at InnoFaith.com or at Sylton.com to learn more.

At Innofaith, you will have the opportunity to work in a close-knit team of 25-30 enthusiastic individuals. You will be at the forefront of cutting-edge technology, pushing the boundaries of deep tech in the cosmetic industry. Thus, your work has the potential to make a significant impact in the world of cosmetics.

YOUR ROLE

Innofaith is actively seeking a highly talented and motivated Master's student specializing in artificial intelligence to join our dynamic Research and Innovation team. As a thesis student, you will embark on a fun and challenging 6-month research journey with the exciting potential for full-time employment in the future. Also, as part of the thesis the student will be paid a remuneration of €747 according to the guidelines of the Government of the Netherlands.

THESIS PROPOSAL

Coming to the Master's thesis, Innofaith is in the phase of developing high-fidelity and highly accurate 3D reconstructed face model of our clients, during their visits to the clinic. 3D reconstruction of the face is of vital importance for the next generation of product line-up at Innofaith with many potential use-cases, from after-treatment analysis of injectables/ fillers on the face of clients to computing the true skin color of the client and many more.

Your ideation and imagination to the boundless possibility of applications is also highly welcomed and appreciated!

CURRENT METHOD

The current approach involves parametric modeling, where mathematical optimization is used to fit 3D morphable models to scanned point clouds of the face. In some cases, depth maps of the client's face are computed and 3D morphable models are then fitted on top of this map using conventional optimization methodologies. Recent advancements have incorporated neural networks to fine-tune the parameters of these models, moving us closer to achieving true-to-life facial reconstructions.

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We also encourage you to have a brief look at the most detailed and accurate 3D reconstruction model amongst others out in the market right now, to get an idea of the problem we at Innofaith are looking at: https://tempeh.is.tue.mpg.de/

THESIS AIM AND YOUR PRESENCE

For this Master's thesis, we are looking for a student to pioneer novel approaches to 3D face reconstruction. With our next-generation hardware, including three monocular cameras placed at different viewing perspectives of the face and a single centrally placed depth camera, you will have the tools to explore innovative methods for developing highly accurate 3D facial reconstructions.

The impact of your presence at Innofaith:

1. Collaborate with the team to understand the requirements and goals of Innofaith's next-generation products.
2. Contribute to the growth and expertise of Innofaith's Computer Vision team.
3. Pave the way for the development of novel deep learning techniques for creating high-fidelity 3D reconstructed faces of our clients.
4. Effectively communicate your findings and results with the research team at Innofaith.
5. A hybrid working option with a mandatory two days a week at Innofaith office.

WHO ARE WE LOOKING FOR?:

1. Currently pursuing a master’s degree in computer science with a specialization in deep learning.
2. Must have EU citizenship or be enrolled in a Dutch university due to work permit regulations.
3. Profound knowledge of deep learning algorithms and techniques.
4. A basic understanding of VAEs and GANs would be considered a plus.
5. Strong programming skill in Python, knowledge of C++ would be considered a plus.
6. Exceptional analytical, mathematical and problem-solving abilities.
7. Outstanding communication and teamwork skills.
8. A boundless passion for learning and an eagerness to tackle challenges.
9. Prior experience with Jetson boards or training models in the cloud is a definite plus.

AFTER YOU APPLY

Our dedicated recruitment team is committed to providing you with a meaningful and thorough experience throughout your journey with us, regardless of the outcome. Your application will be carefully reviewed, and you can trust that all follow-up actions, including assessments and interviews, will be conducted diligently. We will support you every step of the way, all the way through the onboarding process.