

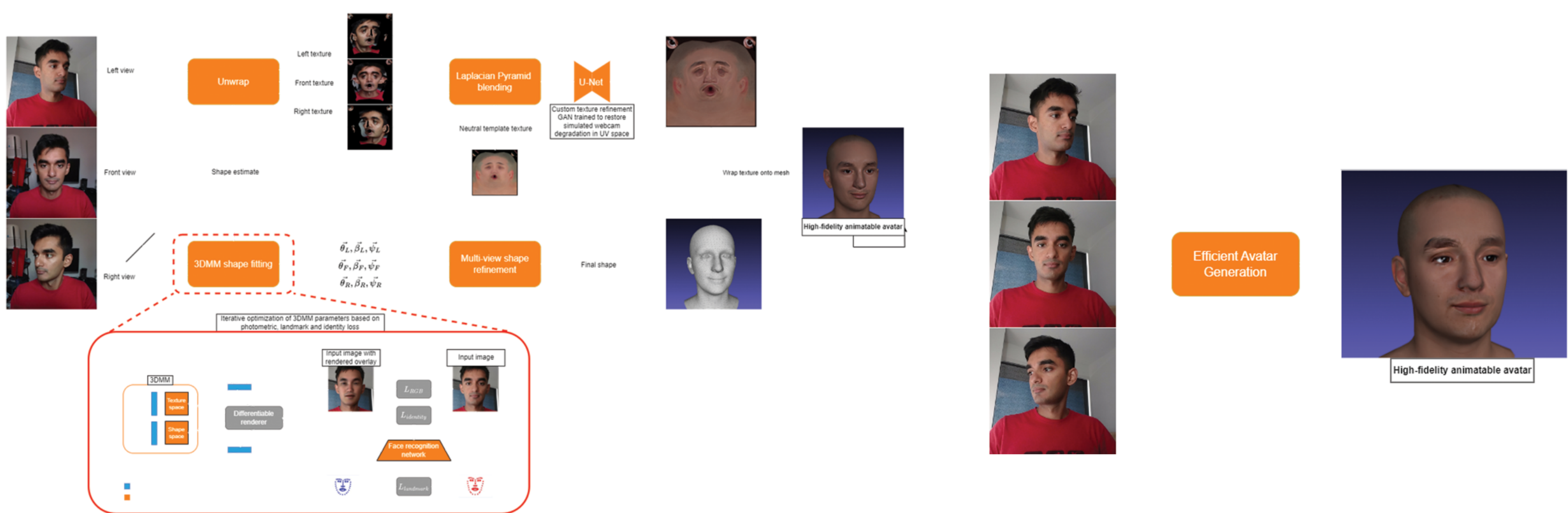
## High-Fidelity Human Avatars from Laptop Webcams using Edge Compute

Personalized photorealistic avatars for video calls and virtual reality, generated automatically using your webcam and running locally.

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### PROJECT SUMMARY

The applications of generating photorealistic human avatars are vast: they can substitute for a user's real-time video feed in teleconferencing, ensuring privacy and conserving bandwidth, or enable immersive interactions within virtual reality environments. High-fidelity avatar generation traditionally required expensive professional camera rigs and artistic labour, but recent research has enabled constructing them automatically from smartphones with RGB and IR sensors. However, these new methods still rely on the presence of high-resolution cameras on modern smartphones and often require offloading the processing to powerful servers with GPUs. Modern applications such as video conferencing call for the ability to generate these avatars from consumer-grade laptop webcams using the limited compute available on-device. In this work, we develop a novel method based on 3D morphable models, landmark detection, photorealistic texture GANs and differentiable rendering to tackle the problem of low webcam image quality and edge computation. We build an automatic system to generate high-fidelity animatable avatars under these limitations, leveraging the neural compute capabilities of AMD's mobile chips.

### REFERENCES

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