Ondřej Texler

Personal Data

Affiliation:	GenAI Researcher, HeyGen Los Angeles, California, USA
Place of stay:	San Jose, California, USA
Immigration:	Green Card holder (NIW, National Interest Waiver)
Date of birth:	9th October 1992
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Research Summary

My entire research career has been revolving around generating realistically looking content given certain conditions. During my PhD, I focused on research into style transfer – generating realistically looking paintings and animated movies; my extensive collaboration and internships with Adobe Research and Snap resulted in 8 publications and winning the Best in Show Award at Real-Time Live at SIGGRAPH 2020. At Samsung Research America, I was conducting research into computer vision techniques to generate virtual humans with a particular emphasis on photorealism, resulting in 1 publication and 9 patents. At Drip Artificial, I was leading the research efforts into synthesizing stylized videos given a text description. These days, at HeyGen, I focus on research and applications of generative video models for content creation.

Education

Doctoral degree study (PhD) **2018 – 2021**
Computer Graphics, Czech Technical University in Prague.
Advised by Prof. Daniel Sýkora

Master degree study (MSc) **2016 – 2018**
Computer Science, Czech Technical University in Prague.

Bachelor degree study (BSc) **2012 – 2016**
Computer Science, Czech Technical University in Prague.

Professional Experience

GenAI Researcher, HeyGen, Los Angeles **4/2024 – present**
Research of generative video models for content creation, including stable video diffusion models, diffusion transformers, GAN-based approaches.

Founding Research Scientist, Drip Artificial, California **2/2023 – 4/2024**
Leading the research efforts into developing an end-to-end Generative AI framework that allows for creating stylized videos and animations based on a text prompt; in particular, text-to-video synthesis, example-based video style transfer, and propagating edits through the video sequence.

Senior Research Scientist, Samsung Research America, California **3/2021 – 4/2023**
Research and implementation of computer vision and deep learning techniques to render photorealistic virtual humans, focusing on faces. Involved conditional GANs, image-to-image translation networks, deferred neural rendering. Part of the NEON project. Resulted in 9 patents and one CVPR publication.

Intern Research Scientist, Samsung Research America, California **4/2020 – 2/2021**
Research and implementation of various image-to-image and video-to-video translation neural networks for face manipulation, e.g., adding makeup, changing skin tone, adding or removing scars or wrinkles. Part of the NEON project.

Intern Research Scientist, Snap Inc., Los Angeles, California **7/2019 – 10/2019**
Research of new techniques on training generative adversarial networks for style transfer tasks; focused on a scenario where a minimal amount of data is available, and an interactive response is required. Furthermore, developing a shader-based real-time stylization for human portraits.

Remote Collaboration, Adobe Research, USA **9/2017 – 12/2019**
Remote collaboration on several research projects, publications, and tech transfer project. Computer graphics; patch-based style transfer; neural-network-based style transfer.

Intern Research Scientist, Adobe Research, Seattle, Washington. 7/2018 – 10/2108
Combining neural-network-based and patch-based style transfer methods. Chunk-based style transfer method with a focus on real-time performance.

Intern Research Scientist, Adobe Research, San Jose, California 9/2017 – 12/2107
Guiding patch-based style transfer method using convolutional neural networks, image harmonization, and histogram optimization. Integrating developed style transfer method into Adobe Photoshop.

Software Architect and Developer, Dynavix, Prague, Czechia 5/2014 – 9/2017
Software Architecture & Development. The navigation application for smartphones. C++, Java, Objective-C, C#.

Software Developer, World of Warcraft game server, Prague, Czechia 2/2013 – 5/2014
Software Development. The World of Warcraft game server. Extending game mechanics, scripting artificial intelligence, data-mining. C++, C#.

Publications

S. Ravichandran, **O. Texler**, D. Dinev, and HJ. Kang: **Synthesizing Photorealistic Virtual Humans Through Cross-modal Disentanglement.** *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (CVPR 2023, June 2023)

A. Texler, **O. Texler**, M. Kučera, M. Chai, and D. Sýkora: **FaceBlit: Instant Real-time Example-based Style Transfer to Facial Videos.** In *Proceedings of the ACM in Computer Graphics and Interactive Techniques, 4(1):14* (I3D'21, April 2021)

F. Hauptfleisch, **O. Texler**, A. Texler, J. Křivánek, and D. Sýkora: **StyleProp: Real-time Example-based Stylization of 3D Models.** In *Computer Graphics Forum, 39(7):575–586* (Pacific Graphics 2020)

O. Texler, D. Futschik, M. Kučera, O. Jamriška, Š. Sochorová, M. Chai, S. Tulyakov, and D. Sýkora: **Interactive Video Stylization Using Few-Shot Patch-Based Training.** In *ACM Transactions on Graphics, 39(4):73* (SIGGRAPH 2020, August 2020) **Featured at RealTime Live @ SIGGRAPH 2020, won Best in Show Award.**

O. Texler, D. Futschik, J. Fišer, M. Lukáč, J. Lu, E. Shechtman, and D. Sýkora: **Arbitrary Style Transfer Using Neurally-Guided Patch-Based Synthesis.** In *Computers & Graphics, 87:62–71* (January 2020)

O. Jamriška, Š. Sochorová, **O. Texler**, M. Lukáč, J. Fišer, J. Lu, E. Shechtman, and D. Sýkora: **Stylizing Video by Example.** In *ACM Transactions on Graphics, 38(4):107* (SIGGRAPH 2019, Los Angeles, California, July 2019)

O. Texler, J. Fišer, M. Lukáč, J. Lu, E. Shechtman, and D. Sýkora: **Enhancing Neural Style Transfer using Patch-Based Synthesis.** In *Proceedings of the 8th ACM/EG Expressive Symposium, pp. 43–50* (Expressive 2019, Genoa, Italy, May 2019)

D. Sýkora, O. Jamriška, **O. Texler**, J. Fišer, M. Lukáč, J. Lu, and E. Shechtman: **StyleBlit: Fast Example-Based Stylization with Local Guidance.** In *Computer Graphics Forum, 38(2):83–91* (Eurographics 2019, Genoa, Italy, May 2019)

O. Texler and D. Sýkora: **Example-Based Stylization of Navigation Maps on Mobile Devices.** In *Proceedings of the 22nd Central European Seminar on Computer Graphics.*, (CESCG 2018, Smolenice, Slovakia, 2018)

Selected Patents

O. Texler, D. Dinev, A. Gupta, H.J. Kang, A. Liot, S. Ravichandran, S. Sadi: **Hierarchical Model-based Generation of Images**, *US Patent US17/967,868*, December 2023

S. Ravichandran, A. Liot, D. Dinev, **O. Texler**, H.J. Kang, J. Palan, S. Sadi: **Creating Images, Meshes, and Talking Animations from Mouth Shape Data**, *US Patent US17/967,872*, December 2023

S. Ravichandran, D. Dinev, **O. Texler**, A. Gupta, J. Palan, H.J. Kang, A. Liot, S. Sadi: **Multimodal Disentanglement for Generating Virtual Human Avatars**, *US Patent US18/296,202*, January 2024

D. Dinev, **O. Texler**, S. Ravichandran, J. Palan, H.J. Kang, A. Gupta, A. Unnikrishnan, A. Liot, S. Sadi: **End-to-end System for Synthesizing Talking Virtual Human Avatars**, *US Patent App. 63/436,058*, December 2022

H.J. Kang, S. Ravichandran, **O. Texler**, D. Dinev, A. Liot, S. Sadi: **Architecture for Using 1D Inputs in Image-2-Image Translation Networks**, *US Patent App. 63/436,211*, December 2022

D. Dinev, S. Ravichandran, H.J. Kang, **O. Texler**, A. Liot, S. Sadi **High-fidelity Neural Rendering of Images** *US Patent App. 63/461,199*, January 2024

A. Liot, A. Unnikrishnan, S. Sadi, S. Banerjee, V. Gokul, J. Palan, H.J. Kang, **O. Texler Cache-based Content Distribution Network** *US Patent App. 63/453,825*, January 2024

R. Lokesh, S. Banerjee, H.J. Kang, **O. Texler**, S. Sadi **Lightweight Rendering System with on-device Resolution Improvement** *US Patent App. 63/456,337*, January 2024

Selected Talks & Interviews

SIGGRAPH Now 2021, invited talk, link
2d3d.ai, invited talk, 2021, link
BBC News Arabic, interview, 2020, link
RealTime Live!, session at SIGGRAPH 2020, link
ECCV 2020, short oral, link
SIGGRAPH 2020, paper session, link
Expressive 2019, paper session
EuroGraphics 2019, paper session
CESCG 2018, paper session

Review Services

AI4CC @ CVPR 2024, AI for Content Creation Workshop
CAG 2024, Computers & Graphics
CTU in Prague 2024, Thesis Reviewer
WACV 2024, IEEE/CVF Winter Conference on Applications of Computer Vision
CAG 2023, Computers & Graphics
TVCG 2022, IEEE Transactions on Visualization and Computer Graphics
SIGGRAPH Asia 2022, ACM Transactions on Graphics
SIGGRAPH 2022, ACM Transactions on Graphics
SIGGRAPH Asia 2021, ACM Transactions on Graphics
Pacific Graphics 2021, Computer Graphics Forum

Awards

Joseph Fourier Prize Laureate, 2021
Best in Show Award, Real-Time Live, SIGGRAPH 2020

Student Supervision

A. Moravcová, MSc, CTU in Prague
A. Sternwaldová, MSc, CTU in Prague

Programming & Tools

C/C++, Python, Java
PyTorch, OpenCV, CUDA