Ondřej Texler

Personal Data

Affiliation: Samsung Research America
Mountain View, California, USA
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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. These days, at Samsung Research America, I do research into computer vision techniques to generate virtual humans with a particular emphasis on photorealism.

Education

Doctoral degree study (PhD) **2018 – 2021**
Computer Graphics, Czech Technical University in Prague.
Dissertation Thesis: Example-based Style Transfer.
Advised by Prof. Daniel Sýkora

Master degree study (MSc) **2016 – 2018**
Computer Science, Czech Technical University in Prague.
Master Thesis: Digital Image Processing and Image Stylization.

Bachelor degree study (BSc) **2012 – 2016**
Computer Science, Czech Technical University in Prague.
Bachelor Thesis: Architecture design and implementation of a large software system.

High school **2004 – 2012**
Mathematics, Physics, and Descriptive Geometry specialization, Gymnasium of Christian Doppler.

Professional Experience

Senior Research Scientist, Samsung Research America, California **3/2021 – Present**
Research & Development. Research and implementation of computer vision and deep learning techniques related to creating virtual artificial humans. Work with conditional GANs, image-to-image translation networks, and other variants of generative models. Part of the neonlife.ai project.

Intern Research Scientist, Samsung Research America, California **4/2020 – 2/2021**
Research & Development. Research and implementation of various image-to-image and video-to-video translation neural networks. Part of the neonlife.ai project.

Intern Research Scientist, Snap Inc., Los Angeles, California **7/2019 – 10/2019**
Research & Development. 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**
Research & Development. 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**
Research & Development. 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
Research & Development. 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

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)

Patents

O. Texler, D. Dinev, A. Gupta, H.J. Kang, A. Liot, S. Ravichandran, S. Sadi: **Hierarchical Creation of Visual Data for Generating Images of Human Faces**, *Provisional App. No. 63/349,289*, June 2022

S. Ravichandran, A. Liot, D. Dinev, **O. Texler**, H.J. Kang, J. Palan, S. Sadi: **Creating Talking Animations from Visemes Audio Features**, *Provisional App. No. 63/349,298*, June 2022

S. Ravichandran, D. Dinev, **O. Texler**, A. Gupta, J. Palan, H.J. Kang, A. Liot, S. Sadi: **Disentanglement of Modalities Through Augmentation for Generating Virtual Avatars**, *Provisional App. No. 63/359,950*, July 2022

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	**WACV 2023**, IEEE/CVF Winter Conference on Applications of Computer Vision **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
Computer Science & Programming Skills	**Academic / Research & Development**, conducting research, publishing of scientific papers **Computer Graphics / Computer Vision**, conducting research, shaders, CUDA, OpenCV **Deep Learning / Convolutional Neural Networks / GANs**, PyTorch, NumPy, SciPy **Software Architecture & Development** **C/C++11/14** **Python**, machine learning, data-science **Java**, Desktop and Android **C#** **Objective-C**