Dimitar Petkov Dinev

My research interests include neural rendering, computer vision, and computer graphics.

Research Experience:

Applied Research Scientist - STAR Labs, Samsung Research America, Campbell, California, USA (May 2020-Present)
➢ Part of a core research team for NEON, focused on bringing digital humans to life. Worked with various visual and audio representations of human speech and motion. Also worked on rapid personalized avatar creation. Used Pytorch and C++, including interoperability between the two. Developed end-to-end machine learning pipelines for facial rendering and animation.

Research Intern - Facebook Reality Labs, Sausalito, California, USA (June 2019-September 2019)
➢ Spent a summer internship working on physics-based simulation of virtual humans for AR/VR applications.

Research Intern - Disney Research Zürich, Zürich, Switzerland (June 2017-September 2017)
➢ Worked with senior researchers on a project involving virtual representation of humans, resulting in a publication.

PhD Student - University of Utah, Salt Lake City, Utah, USA (January 2016-May 2020)
➢ Dissertation focused on physics-based animation, numerical time integration, and their applications to simulation of virtual humans.

Education:

University of Utah, Salt Lake City, Utah, USA (January 2016-December 2020)
➢ PhD in Computer Science (3.94 GPA)
➢ Thesis: **"Physics-based Dynamics with Applications to Facial Animation"**
➢ Relevant Coursework: Physics-based Animation, Interactive Computer Graphics, Numerical Optimization

Columbia University in the City of New York, New York, USA (September 2013-December 2014)
➢ Master of Science in Computer Science (3.53 GPA)
➢ Relevant Coursework: Adv. Computer Graphics, GPU Computing, Digital Geometry Processing, Computer Animation

University of Florida, Gainesville, Florida, USA (August 2008-May 2013)
➢ Bachelor of Science in Computer Engineering, Cum Laude (3.57 GPA)

Ritsumeikan University, Kyoto, Japan (September 2012-August 2013)
➢ Study In Kyoto Program Graduate (1 Year Study Abroad)

Other Work Experience:

Software Intern/Engineer - The Walt Disney Company, Seattle, Washington, USA (June 2014-January 2016)
➢ Worked on Playmation: an interactive new play experience by combining wearable technology with smart toys. Contributed to a complex networked system, mostly written in C/C++ with some Lua.

Software Engineering Intern Lockheed Martin Global Training and Logistics, Orlando, Florida, USA (May 2011-July 2011)
➢ Summer internship, required security clearance. Worked with a team of engineers to build a vehicle simulator written in Ada for use in military training. Debugged separate modules (including audio and video) as well as overall system bugs.

Publications:
➢ S. Ravichandran, O. Texler, D. Dinev, HJ. Kang, **"Synthesizing Virtual Humans through Cross-modal Disentanglement"**, IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2023
➢ D. Dinev, W. Guo, P. Kadleček, L. Kavan, "**Solving for Muscle Blending Using Data**" Computers & Graphics 92, 2020
➢ D. Dinev, T. Beeler, D. Bradley, M. Bächer, H. Xu, L. Kavan, **"User-Guided Lip Correction for Facial Performance Capture"**, Computer Graphics Forum 37 (8), [Presented at Symposium on Computer Animation], 2018
➢ D. Dinev*, T. Liu*, J. Li, B. Thomaszewski, L. Kavan, **"FEPR: Fast Energy Projection for Real-Time Simulation of Deformable Objects"**, ACM Transactions on Graphics 37(4) [Presented at SIGGRAPH], 2018 (*joint first authors)
➢ D. Dinev, T. Liu, L. Kavan, **"Stabilizing Integrators for Real-Time Physics"**, ACM Transactions on Graphics 37(1), 2018

Skills:
➢ Programming Languages: C/C++, Python, Java, CUDA, VHDL, Ada.
➢ Human Languages: English, Bulgarian, and Japanese fluency.
➢ General: NumPy/SciPy, PyTorch, Eigen, FEM, Numerical Optimization, limited Tensorflow experience