

SIGGRAPH 2022 TECHNICAL PAPERS

A Clebsch Method for Free-Surface Vortical Flow Simulation

Shiyong Xiong, Zhecheng Wang, Mengdi Wang, Bo Zhu

A Fast Unsmoothed Aggregation Algebraic Multigrid Framework for the Large-scale Simulation of Incompressible Flow

Han Shao, Libo Huang, Dominik Michels

A General Two-Stage Initialization for Sag-free Deformable Simulations

Jerry Hsu, Nghia Truong, Cem Yuksel, Kui Wu

A GPU-Based Multilevel Additive Schwarz Preconditioner for Cloth and Deformable Body Simulation

Botao Wu, Zhendong Wang, Huamin Wang

A Motion Matching-based Framework for Controllable Gesture Synthesis From Speech

Ikhsanul Habibie, Mohamed Elgharib, Kripasindhu Sarkar, Ahsan Abdullah, Simbarashe Nyatsanga, Michael Neff, Christian Theobalt

A Moving Eulerian-Lagrangian Particle Method for Thin Film and Foam Simulation

Yitong Deng, Mengdi Wang, Xiangxin Kong, Shiyong Xiong, Zangyueyang Xian, Bo Zhu

A Theoretical Analysis of Compactness of the Light Transport Operator

Cyril Soler, Ronak Molazem, Kartic Subr

A Unified Newton Barrier Method for Multibody Dynamics

Yunuo Chen, Minchen Li, Lei Lan, Hao Su, Yin Yang, Chenfanfu Jiang

Accommodative Holography: Improving Accommodation Response for Perceptually Realistic Holographic Displays

Dongyeon Kim, Seung-Woo Nam, Byounghyo Lee, Jong-Mo Seo, Byoungho Lee

Adaptive Rigidification of Elastic Solids

Alexandre Mercier-Aubin, Alexander Winter, David Levin, Paul Kry

Adjoint Nonlinear Ray Tracing

Arjun Teh, Ioannis Gkioulekas, Matthew O'Toole

ADOP: Approximate Differentiable One-pixel Point Rendering

Darius Rückert, Linus Franke, Marc Stamminger

Affine Body Dynamics: Fast, Stable, and Intersection-free Simulation of Stiff Materials

Lei Lan, Danny Kaufman, Minchen Li, Chenfanfu Jiang, Yin Yang

Alpha Wrapping With an Offset

Cédric Portaneri, Mael Rouxel-Labbé, David Cohen-Steiner, Michael Hemmer, Pierre Alliez

Alpha-Functions — Piecewise-linear Approximation From Noisy and Hermite Data

Marc Alexa

Analytically Integratable Zero-Restlength Springs for Capturing Dynamic Modes Unrepresented by Quasistatic Neural Networks

Yongxu Jin, Yushan Han, Zhenglin Geng, Joseph Teran, Ronald Fedkiw

Animating Portrait Line Drawings From a Single Face Photo and a Speech Signal

Ran Yi, Zipeng Ye, Ruoyu Fan, Yezhi Shu, Yong-Jin Liu, Yu-Kun Lai, Paul Rosin

Approximate Convex Decomposition for 3D Meshes With Collision-Aware Concavity and Tree Search

Xinyue Wei, Minghua Liu, Zhan Ling, Hao Su

Artemis: Articulated Neural Pets With Appearance and Motion Synthesis

Haimin Luo, Teng Xu, Yuheng Jiang, Chenglin Zhou, Qiwei Qiu, Yingliang Zhang, Wei Yang, Lan Xu, Jingyi Yu

As-Locally-Uniform-as-Possible Reshaping of Vector Clip Art

Chrystiano Araújo, Nicholas Vining, Enrique Rosales, Giorgio Gori, Alla Sheffer

ASE: Large-Scale Reusable Adversarial Skill Embeddings for Physically Simulated Characters

Xue Bin Peng, Yunrong Guo, Lina Halper, Sergey Levine, Sanja Fidler

ASSET: Autoregressive Semantic Scene Editing With Transformers at High Resolutions

Difan Liu, Sandesh Shetty, Tobias Hinz, Matthew Fisher, Richard Zhang, Taesung Park, Evangelos Kalogerakis

Authentic Volumetric Avatars From a Phone Scan

Chen Cao, Tomas Simon, Jin Kyu Kim, Gabe Schwartz, Michael Zollhoefer, Shunsuke Saito, Stephen Lombardi, Shih-En Wei, Danielle Belko, Shoou-I Yu, Yaser Sheikh, Jason Saragih

Automatic Quantization for Physics-Based Simulation

Jiafeng Liu, Haoyang Shi, Siyuan Zhang, Yin Yang, Chongyang Ma, Weiwei Xu

AvatarCLIP: Zero-shot Text-driven Generation and Animation of 3D Avatars

Fangzhou Hong, Mingyuan Zhang, Liang Pan, Zhongang Cai, Lei Yang, Ziwei Liu

A__ : Autodiff for Discontinuous Programs — Applied to Shaders

Yuting Yang, Connelly Barnes, Andrew Adams, Adam Finkelstein

CCP: Configurable Crowd Profiles

Panayiotis Charalambous, Andreas Panayiotou, Marilena Lemonari, Yiorgos Chrysanthou, Theodoros Kyriakou

Node Graph Optimization Using Differentiable Proxies

Yiwei Hu, Paul Guerrero, Milos Hasan, Holly Rushmeier, Valentin Deschaintre

Character Articulation Through Profile Curves

Fernando de Goes, William Sheffler, Kurt Fleischer

CLIP2StyleGAN: Unsupervised Extraction of StyleGAN Edit Directions

Rameen Abdal, Peihao Zhu, John Femiani, Niloy Mitra, Peter Wonka

CLIPasso: Semantically Aware Object Sketching

Yael Vinker, Ehsan Pajouheshgar, Jessica Y. Bo, Roman Christian Bachmann, Amit Bermano, Daniel Cohen-Or, Amir Zamir, Ariel Shamir

Closed-Loop Control of Direct Ink Writing via Reinforcement Learning

Michal Piovarci, Michael Foshey, Jie Xu, Timothy Erps, Vahid Babaei, Piotr Didyk, Wojciech Matusik, Szymon Rusinkiewicz, Bernd Bickel

Clustered Vector Textures

Peihan Tu, Li-Yi Wei, Matthias Zwicker

Compact Poisson Filters for Fast Fluid Simulation

Amir Hossein Rabbani, Jean-Philippe Guertin, Damien Rioux-Lavoie, Arnaud Schoentgen, Kaitai Tong, Alexandre Sirois-Vigneux, Derek Nowrouzezahrai

Comparison of Single-image HDR Reconstruction Methods — The Caveats of Quality Assessment

Param Hanji, Rafal Mantiuk, Gabriel Eilertsen, Saghi Hajisharif, Jonas Unger

Compatible Intrinsic Triangulations

Kenshi Takayama

ComplexGen: CAD Reconstruction by B-rep Chain Complex Generation

Haoxiang Guo, Shilin Liu, Hao Pan, Yang Liu, Xin Tong, Baining Guo

Computational Design of High-level Interlocking Puzzles

Rulin Chen, Ziqi Wang, Peng Song, Bernd Bickel

Computational Design of Passive Grippers

Milin Kodnongbua, Ian Good, Yu Lou, Jeffrey Lipton, Adriana Schulz

Computational Pattern Making From 3D Garment Models

Nico Pietroni, Corentin Dumery, Raphael Falque, Mark Liu, Teresa Vidal-Calleja, Olga Sorkine-Hornung

Computing Sparse Integer-constrained Cones for Conformal Parameterizations

Mo Li, Qing Fang, Wenqing Ouyang, Ligang Liu, Xiao-Ming Fu

Contact-Centric Deformation Learning

Cristian Romero, Dan Casas, Maurizio Chiaramonte, Miguel A. Otaduy

Covector Fluids

Mohammad Sina Nabizadeh, Stephanie Wang, Ravi Ramamoorthi, Albert Chern

Dark Stereo: Improving Depth Perception Under Low Luminance

Krzysztof Wolski, Fangcheng Zhong, Karol Myszkowski, Rafal Mantiuk

DCT-Net: Domain-Calibrated Translation for Portrait Stylization

Yifang Men, Yuan Yao, Miaomiao Cui, Zhouhui Lian, Xuansong Xie

Deep Compliant Control

Seunghwan Lee, Jehee Lee, Phil Sik Chang

Deep Deformable 3D Caricatures With Learned Shape Control

Yucheol Jung, Wonjong Jang, Soongjin Kim, Jiaolong Yang, Xin Tong, Seungyong Lee

DeepPhase: Periodic Autoencoders for Learning Motion Phase Manifolds

Sebastian Starke, Ian Mason, Taku Komura

DeepVideoFaceEditing: Sketch-based Deep Editing of Face Videos

Feng-Lin Liu, Shu-Yu Chen, Yu-Kun Lai, Chun-Peng Li, Yue-Ren Jiang, Hongbo Fu, Lin Gao

DEF: Deep Estimation of Sharp Geometric Features in 3D Shapes

Albert Matveev, Ruslan Rakhimov, Alexey Artemov, Gleb Bobrovskikh, Vage Egiazarian, Emil Bogomolov, Daniele Panozzo, Denis Zorin, Evgeny Burnaev

DeltaConv: Anisotropic Operators for Geometric Deep Learning on Point Clouds

Ruben Timotheus Wiersma, Ahmad Nasikun, Elmar Eisemann, Klaus Hildebrandt

Designing Perceptual Puzzles by Differentiating Probabilistic Programs

Kartik Chandra, Tzu-Mao Li, Joshua Tenenbaum, Jonathan Ragan-Kelley

Detecting Viewer-Perceived Intended Vector Sketch Connectivity

Jerry Yin, Chenxi Liu, Rebecca Lin, Nicholas Vining, Helge Rhodin, Alla Sheffer

Developability-Driven Piecewise Approximations for Triangular Meshes

Zheng-Yu Zhao, Qing Fang, Wenqing Ouyang, Zheng Zhang, Ligang Liu, Xiao-Ming Fu

Diffeomorphic Neural Surface Parameterization for 3D and Reflectance Recovery

Ziang Cheng, Hongdong Li, Richard Hartley, Yinqiang Zheng, Imari Sato

Differentiable Signed Distance Function Rendering

Delio Vicini, Sébastien Speierer, Wenzel Jakob

Disentangling Random and Cyclic Effects in Time-lapse Sequences

Erik Härkönen, Miika Aittala, Tuomas Kynkäänniemi, Samuli Laine, Timo Aila, Jaakko Lehtinen

Domain Enhanced Arbitrary Image Style Transfer via Contrastive Learning

Yuxin Zhang, Fan Tang, Weiming Dong, Haibin Huang, Chongyang Ma, Tong-Yee Lee, Changsheng Xu

Dr.Jit: A Just-in-time Compiler for Differentiable Rendering

Wenzel Jakob, Sébastien Speierer, Nicolas Roussel, Delio Vicini

Drivable Volumetric Avatars Using Texel-Aligned Features

Edoardo Remelli, Timur Bagautdinov, Shunsuke Saito, Chenglei Wu, Tomas Simon, Shih-En Wei, Kaiwen Guo, Zhe Cao, Fabian Prada, Jason Saragih, Yaser Sheikh

Dual Octree Graph Networks for Learning Adaptive Volumetric Shape Representations

Peng-Shuai Wang, Yang Liu, Xin Tong

Dynamic Optimal Space Partitioning for Redirected Walking in Multi-User Environment

Sang-Bin Jeon, Soon-Uk Kwon, June-Young Hwang, Yong-Hun Cho, Hayeon Kim, Jinhyung Park, In-Kwon Lee

EAMM: One-Shot Emotional Talking Face via Audio-Based Emotion-Aware Motion Model

Xinya Ji, Hang Zhou, Kaisiyuan Wang, Qianyi Wu, Wayne Wu, Feng Xu, Xun Cao

EARS: Efficiency-Aware Russian Roulette and Splitting

Alexander Rath, Pascal Grittmann, Sebastian Herholz, Philippe Weier, Philipp Slusallek

Ecoclimates: Climate-response Modeling of Vegetation

Wojtek Palubicki, Milosz Makowski, Weronika Gajda, Torsten Hädrich, Dominik L. Michels, Sören Pirk

Efficiency-Aware Multiple Importance Sampling for Bidirectional Rendering Algorithms

Pascal Grittmann, Ömercan Yazici, Iliyan Georgiev, Philipp Slusallek

Efficient Estimation of Boundary Integrals for Path-Space Differentiable Rendering

Kai Yan, Christoph Lassner, Brian Budge, Zhao Dong, Shuang Zhao

Efficient Kinetic Simulation of Two-Phase Flows

Wei Li, Yihui Ma, Xiaopei Liu, Mathieu Desbrun

Egocentric Scene Reconstruction From an Omnidirectional Video

Hyeonjoong Jang, Andréas Meuleman, Dahyun Kang, Donggun Kim, Christian Richardt, Min H. Kim

Eikonal Fields for Refractive Novel-View Synthesis

Mojtaba Bemana, Karol Myszkowski, Jeppe Revall Frisvad, Hans-Peter Seidel, Tobias Ritschel

EMBER: Exact Mesh Booleans via Efficient and Robust Local Arrangements

Philip Trettner, Julius Nehring-Wirxel, Leif Kobbelt

Energetically Consistent Inelasticity for Optimization Time Integration

Xuan Li, Minchen Li, Chenfanfu Jiang

Estimation of Yarn-level Simulation Models for Production Fabrics

Georg Sperl, Rosa M. Sánchez-Banderas, Manwen Li, Chris Wojtan, Miguel A. Otaduy

EyeNeRF: A Hybrid Representation for Photorealistic Synthesis, Animation, and Relighting of Human Eyes

Gengyan Li, Abhimitra Meka, Franziska Mueller, Marcel Buehler, Otmar Hilliges, Thabo Beeler

Face Deblurring Using Dual Camera Fusion on Mobile Phones

Wei-Sheng Lai, YiChang Shih, Lun-Cheng Chu, Xiaotong Wu, Sung-fang Tsai, Michael Krainin, Deqing Sun, Chia-Kai Liang

Face Extrusion Quad Meshes

Karran Pandey, J. Andreas Bærentzen, Karan Singh

Facial Hair Tracking for High Fidelity Performance Capture

Sebastian Winberg, Gaspard Zoss, Prashanth Chandran, Paulo Gotardo, Derek Bradley

Fast Evaluation of Smooth Distance Constraints on Co-dimensional Geometry

Abhishek Madan, David Levin

Filament Based Plasma

Marcel Padilla, Oliver Gross, Felix Knöppel, Albert Chern, Ulrich Pinkall, Peter Schröder

Free2CAD: Parsing Freehand Drawings Into CAD Commands

Changjian Li, Hao Pan, Adrien Bousseau, Niloy Mitra

GANimator: Neural Motion Synthesis From a Single Sequence

Peizhuo Li, Kfir Aberman, Zihan Zhang, Rana Hanocka, Olga Sorkine-Hornung

Generalized Resampled Importance Sampling: Foundations of ReSTIR

Daqi Lin, Markus Kettunen, Benedikt Bitterli, Jacopo Pantaleoni, Cem Yuksel, Chris Wyman

Generative GaitNet

Jungnam Park, Sehee Min, Phil Sik Chang, Jaedong Lee, Moon Seok Park, Jehee Lee

Go Green: General Regularized Green's Functions for Elasticity

Jiong Chen, Mathieu Desbrun

Grid-Free Monte Carlo for PDEs With Spatially Varying Coefficients

Rohan Sawhney, Dario Seyb, Wojciech Jarosz, Keenan Crane

Guided Bubbles and Wet Foam for Realistic Whitewater Simulation

Joel Wretborn, Sean Flynn, Alexey Stomakhin

GWA: A Large Geometric-Wave Acoustic Dataset for Audio Deep Learning

Zhenyu Tang, Rohith Aralikatti, Anton Ratnarajah, Dinesh Manocha

High Dynamic Range and Super-Resolution From Raw Image Bursts

Bruno Lecouat, Thomas Eboli, Jean Ponce, Julien Mairal

Holographic Glasses for Virtual Reality

Jonghyun Kim, Manu Gopakumar, Suyeon Choi, Yifan Peng, Ward Lopes, Gordon Wetzstein

Image Features Influence Reaction Time: A Learned Probabilistic Perceptual Model for Saccade Latency

Budmonde Duinkharjav, Praneeth Chakravarthula, Rachel Brown, Anjul Patney, Qi Sun

ImLoveNet: Misaligned Image-supported Registration Network for Low-overlap Point Cloud Pairs

Honghua Chen, Zeyong Wei, Yabin Xu, Mingqiang Wei, Jun Wang

Implicit Neural Representation for Physics-driven Actuated Soft Bodies

Lingchen Yang, Byungsoo Kim, Gaspard Zoss, Baran Gözcü, Markus Gross, Barbara Solenthaler

Instant Neural Graphics Primitives With a Multiresolution Hash Encoding

Thomas Müller, Alex Evans, Christoph Schied, Alexander Keller

Interactive Augmented Reality Storytelling Guided by Scene Semantics

Changyang Li, Wanwan Li, Haikun Huang, Lap-Fai Yu

Iterative Poisson Surface Reconstruction (iPSR) for Unoriented Points

Fei Hou, Chiyu Wang, Wencheng Wang, Hong Qin, Chen Qian, Ying He

Joint Neural Phase Retrieval and Compression for Energy- and Computation-Efficient Holography on the Edge

Yujie Wang, Praneeth Chakravarthula, Qi Sun, Baoquan Chen

Learning From Documents in the Wild to Improve Document Unwarping

Ke Ma, Sagnik Das, Zhixin Shu, Dimitris Samaras

Learning High-DOF Reaching-and-Grasping via Dynamic Representation of Gripper-Object Interaction

Qijin She, Ruizhen Hu, Juzhan Xu, Min Liu, Kai Xu, Hui Huang

Learning Smooth Neural Functions via Lipschitz Regularization

Hsueh-Ti Derek Liu, Francis Williams, Alec Jacobson, Sanja Fidler, Or Litany

Learning Soccer Juggling Skills With Layer-wise Mixture of Experts

Zhaoming Xie, Sebastian Starke, Hung Yu Ling, Michiel van de Panne

Learning to Brachiate via Simplified Model Imitation

Daniele Reda, Hung Yu Ling, Michiel van de Panne

Learning to Get Up

Tianxin Tao, Matthew Wilson, Ruiyu Gou, Michiel van de Panne

Learning to Use Chopsticks in Diverse Gripping Styles

Zeshi Yang, KangKang Yin, Libin Liu

LeviPrint: Contactless Fabrication Using Full Acoustic Manipulation of Elongated Parts

Iñigo Ezcurdia, Rafael Morales, Marco A. B. Andrade, Asier Marzo

Local Anatomically Constrained Facial Performance Retargeting

Prashanth Chandran, Loïc Ciccone, Markus Gross, Derek Bradley

Loki: A Unified Multiphysics Simulation Framework for Production

Steve Lesser, Alexey Stomakhin, Gilles Daviet, Joel Wretborn, John Edholm, Noh-hoon Lee, Eston Schweickart, Xiao Zhai, Sean Flynn, Andrew Moffat

Low-Poly Mesh Generation for Building Models

Xifeng Gao, Kui Wu, Zherong Pan

MatBuilder: Mastering Sampling Uniformity Over Projections

Loïs Paulin, Nicolas Bonneel, David Coeurjolly, Jean Claude Iehl, Alexander Keller, Victor Ostromoukhov

MatFormer: A Generative Model for Procedural Materials

Paul Guerrero, Milo_Ha_an, Kalyan Sunkavalli, Radomír M_ch, Tamy Boubekour, Niloy Mitra

Blending Camera and 77 GHz Radar Sensing for Equitable, Robust Plethysmography

Alexander Vilesov, Pradyumna Chari, Adnan Armouti, Anirudh Bindiganavale Harish, Kimaya Kulkarni, Ananya Deoghare, Laleh Jalilian, Achuta Kadambi

Mixed Integer Neural Inverse Design

Navid Ansari, Hans-Peter Seidel, Vahid Babaei

Möbius Convolutions for Spherical CNNs

Thomas Mitchel, Noam Aigerman, Vladimir G. Kim, Michael Kazhdan

Modeling and Rendering Non-Euclidean Spaces Approximated With Concatenated Polytopes

Seung-wook Kim, Jaehyung Doh, JungHyun Han

MoRF: Morphable Radiance Fields for Multiview Neural Head Modeling

Daoye Wang, Prashanth Chandran, Gaspard Zoss, Derek Bradley, Paulo Gotardo

Moving Level-of-Detail Surfaces

Corentin Mercier, Thibault Lescoat, Pierre Roussillon, Tamy Boubekour, Jean-Marc Thiery

NeAT: Neural Adaptive Tomography

Darius Rückert, Rui Li, Yuanhao Wang, Ramzi Idoughi, Wolfgang Heidrich

NeROIC: Neural Rendering of Objects From Online Image Collections

Zhengfei Kuang, Kyle Olszewski, Menglei Chai, Zeng Huang, Panos Achlioptas, Sergey Tulyakov

Neural 3D Reconstruction in the Wild

Jiaming Sun, Xi Chen, Qianqian Wang, Zhengqi Li, Hadar Averbuch-Elor, Xiaowei Zhou, Noah Snavely

Neural Dual Contouring

Zhiqin Chen, Andrea Tagliasacchi, Thomas Funkhouser, Hao Zhang

Neural Jacobian Fields: Learning Intrinsic Mappings of Arbitrary Meshes

Noam Aigerman, Kunal Gupta, Vladimir Kim, Jun Saito, Siddhartha Chaudhuri, Thibault Groueix

Neural Layered BRDFs

Jiahui Fan, Beibei Wang, Milos Hasan, Jian Yang, Ling-Qi Yan

Neural Rendering in a Room: Amodal 3D Understanding and Free-viewpoint Rendering for the Closed Scene Composed of Pre-Captured Objects

Bangbang Yang, Yinda Zhang, Yijin Li, Zhaopeng Cui, Sean Fanello, Hujun Bao, Guofeng Zhang

Neural Shadow Mapping

Sayantana Datta, Derek Nowrouzezahrai, Christoph Schied, Zhao Dong

NeuralPassthrough: Learned Real-time View Synthesis for VR

Lei Xiao, Salah Nouri, Joel Hegland, Alberto Garcia Garcia, Douglas Lanman

NeuralSound: Learning-based Modal Sound Synthesis With Acoustic Transfer

Xutong Jin, Sheng Li, Dinesh Manocha, Guoping Wang

NeuralTailor: Reconstructing Sewing Pattern Structures From 3D Point Clouds of Garments

Maria Korosteleva, Sung-Hee Lee

NIMBLE: A Non-rigid Hand Model With Bones and Muscles

Yuwei Li, Longwen Zhang, Zesong Qiu, Yingwenqi Jiang, Nianyi Li, Yuexin Ma, Yuyao Zhang, Lan Xu, Jingyi Yu

Noise-based Enhancement for Foveated Rendering

Taimoor Tariq, Cara Tursun, Piotr Didyk

Novel View Synthesis of Human Interactions From Sparse Multi-view Videos

Qing Shuai, Chen Geng, Qi Fang, Sida Peng, Wenhao Shen, Xiaowei Zhou, Hujun Bao

Palette: Image-to-Image Diffusion Models

Chitwan Saharia, William Chan, Huiwen Chang, Chris Lee, Jonathan Ho, Tim Salimans, David Fleet, Mohammad Norouzi

Penetration-free Projective Dynamics on the GPU

Lei Lan, Guanqun Ma, Yin Yang, Changxi Zheng, Minchen Li, Chenfanfu Jiang

Perception of Letter Glyph Parameters for InfoTypography

Johannes Lang, Miguel A. Nacenta

Perceptual Requirements for Eye-tracked Distortion Correction in VR

Phillip Guan, Olivier Mercier, Michael Shvartsman, Douglas Lanman

Photo-to-Shape Material Transfer for Diverse Structures

Ruizhen Hu, Xiangyu Su, Xiangkai Chen, Oliver van Kaick, Hui Huang

Physics Informed Neural Fields for Smoke Reconstruction With Sparse Data

Mengyu Chu, Lingjie Liu, Quan Zheng, Erik Franz, Hans-Peter Seidel, Christian Theobalt, Rhaleb Zayer

Physics-based Character Controllers Using Conditional VAEs

Jungdam Won Won, Deepak Gopinath, Jessica Hodgins

Piecewise-smooth Surface Fitting Onto Unstructured 3D Sketches

Emilie Yu, Rahul Arora, J. Andreas Bærentzen, Karan Singh, Adrien Bousseau

Position-free Multiple-Bounce Computations for Smith Microfacet BSDFs

Beibei Wang, Wenhua Jin, Jiahui Fan, Nicolas Holzschuch, Jian Yang, Ling-Qi Yan

Practical Level-of-Detail Aggregation of Fur Appearance

Junqiu Zhu, Sizhe Zhao, Lu Wang, Yanning Xu, Ling-Qi Yan

Predicting Loose-Fitting Garment Deformations Using Bone-Driven Motion Networks

Xiaoyu Pan, Jiaming Mai, Xinwei Jiang, Dongxue Tang, Jingxiang Li, Tianjia Shao, Kun Zhou, Xiaogang Jin, Dinesh Manocha

Procedural Texturing of Solid Wood With Knots

Maria Larsson, Takashi Ijiri, Hironori Yoshida, Johannes A. J. Huber, Magnus Fredriksson, Olof Broman, Takeo Igarashi

QuickPose: Real-time Multi-view Multi-person Pose Estimation in Crowded Scenes

Zhize Zhou, Qing Shuai, Yize Wang, Qi Fang, Xiaopeng Ji, Fashuai Li, Hujun Bao, Xiaowei Zhou

R2E2: Low-latency Path Tracing of Terabyte-scale Scenes Using Thousands of Cloud CPUs

Sadjad Fouladi, Brennan Shacklett, Fait Poms, Arjun Arora, Alex Ozdemir, Deepti Raghavan, Pat Hanrahan, Kayvon Fatahalian, Keith Winstein

Random Walks for Adversarial Meshes

Amir Belder, Gal Yefet, Ran Ben-Itzhak, Ayellet Tal

Rapid Design of Articulated Objects

Joon Hyub Lee, Hanbit Kim, Seok-Hyung Bae

Real-time Controllable Motion Transition for Characters

Xiangjun Tang, He Wang, Bo Hu, Xu Gong, Ruifan Yi, Qilong Kou, Xiaogang Jin

Reconstructing Translucent Objects Using Differentiable Rendering

Xi Deng, Fujun Luan, Bruce Walter, Kavita Bala, Steve Marschner

Regression-based Monte Carlo Integration

Corentin Salaun, Adrien Gruson, Binh-Son Hua, Toshiya Hachisuka, Gurprit Singh

ReLU Fields: The Little Non-linearity That Could

Animesh Karnewar, Tobias Ritschel, Oliver Wang, Niloy Mitra

Rendering Iridescent Rock Dove Neck Feathers

Weizhen Huang, Sebastian Merzbach, Clara Callenberg, Doekele Stavenga, Matthias Hullin

Rendering Neural Materials on Curved Surfaces

Alexandr Kuznetsov, Fujun Luan, Krishna Mullia, Zexiang Xu, Xuezheng Wang, Milos Hasan, Ravi Ramamoorthi

Rewriting Geometric Rules of a GAN

Sheng-Yu Wang, David Bau, Jun-Yan Zhu

Robust Computation of Implicit Surface Networks for Piecewise Linear Functions

Xingyi Du, Qingnan Zhou, Nathan Carr, Tao Ju

Scalable Neural Indoor Scene Rendering

Xiuchao Wu, Jiamin Xu, Zihan Zhu, Hujun Bao, Qixing Huang, James Tompkin, Weiwei Xu

Seeing Through Obstructions With Diffractive Cloaking

Zheng Shi, Yuval Bahat, Seung-Hwan Baek, Qiang Fu, Hadi Amata, Xiao Li, Praneeth Chakravarthula, Wolfgang Heidrich, Felix Heide

Self-Conditioned Generative Adversarial Networks for Image Editing

Yunzhe Liu, Rinon Gal, Amit H. Bermano, Baoquan Chen, Daniel Cohen-Or

Self-Distilled StyleGAN: Towards Generation From Internet Photos

Ron Mokady, Omer Tov, Michal Yarom, Oran Lang, Inbar Mosseri, Tali Dekel, Daniel Cohen-Or, Michal Irani

Self-Supervised Post-Correction for Monte Carlo Denoising

Jonghee Back, Binh-Son Hua, Toshiya Hachisuka, Bochang Moon

Semantically Supervised Appearance Decomposition for Virtual Staging From a Single Panorama

Tiancheng Zhi, Bowei Chen, Ivaylo Boyadzhiev, Sing Bing Kang, Martial Hebert, Srinivasa G. Narasimhan

ShaderTransformer: Predicting Shader Quality via One-Shot Embedding for Fast Simplification

Yuchi Huo, Shi Li, Yazhen Yuan, Xu Chen, Rui Wang, Wenting Zheng, Hai Lin, Hujun Bao

Shape Dithering for 3D Printing

Mostafa Morsy Abdelkader Morsy, Alan Brunton, Philipp Urban

Shoot360: Normal View Video Creation From City Panorama Footage

Anyi Rao, Linning Xu, Dahua Lin

Simulation and Optimization of Magnetoelastic Thin Shells

Xuwen Chen, Xingyu Ni, Bo Zhu, Bin Wang, Baoquan Chen

Single-View View Synthesis in the Wild With Learned Adaptive Multiplane Images

Yuxuan Han, Ruicheng Wang, Jiaolong Yang

Sketch2Pose: Estimating a 3D Character Pose From a Bitmap Sketch

Kirill Brodt, Mikhail Bessmeltsev

SNeRF: Stylized Neural Implicit Representations for 3D Scenes

Thu Nguyen-Phuoc, Feng Liu, Lei Xiao

SPAGHETTI: Editing Implicit Shapes Through Part Aware Generation

Amir Hertz, Or Perel, Raja Giryes, Olga Sorkine-Hornung, Daniel Cohen-Or

Sparse Ellipsometry: Portable Acquisition of Polarimetric SVBRDF and Shape With Unstructured Flash Photography

Inseung Hwang, Daniel S. Jeon, Adolfo Muñoz, Diego Gutierrez, Xin Tong, Min H. Kim

SPCBPT: Subspace-Based Probabilistic Connections for Bidirectional Path Tracing

Fujia Su, Sheng Li, Guoping Wang

Spelunking the Deep: Guaranteed Queries on General Neural Implicit Surfaces via Range Analysis

Nicholas Sharp, Alec Jacobson

Stability-Aware Simplification of Curve Networks

William Neveu, Ivan Puhachov, Bernhard Thomaszewski, Mikhail Bessmeltsev

stelaCSF — A Unified Model of Contrast Sensitivity as the Function of Spatio-Temporal Frequency, Eccentricity Luminance, and Area

Rafal K. Mantiuk, Maliha Ashraf, Alexandre Chapiro

Stroke Transfer: Example-Based Synthesis of Animatable Stroke Styles

Hideki Todo, Kunihiko Kobayashi, Jin Katsuragi, Haruna Shimotahira, Shizuo Kaji, Yonghao Yue

StyleGAN-NADA: CLIP-Guided Domain Adaptation of Image Generators

Rinon Gal, Or Patashnik, Haggai Maron, Amit Bermano, Gal Chechik, Daniel Cohen-Or

StyleGAN-XL: Scaling StyleGAN to Large Diverse Datasets

Axel Sauer, Katja Schwarz, Andreas Geiger

Symmetry-Driven 3D Reconstruction From Concept Sketches

Felix Hähnlein, Yulia Gryaditskaya, Alla Sheffer, Adrien Bousseau

Text2Human: Text-driven Controllable Human Image Generation

Yuming Jiang, Shuai Yang, Haonan Qiu, Wayne Wu, Chen Change Loy, Ziwei Liu

The Power Particle-in-Cell Method

Ziyin Qu, Minchen Li, Fernando de Goes, Chenfanfu Jiang

Time-Multiplexed Neural Holography: A Flexible Framework for Holographic Near-Eye Displays With Fast Heavily Quantized Spatial Light Modulators

Suyeon Choi, Manu Gopakumar, Yifan Peng, Jonghyun Kim, Matthew O'Toole, Gordon Wetzstein

TopoCut: Fast and Robust Planar Cutting of Arbitrary Domains

Xianzhong Fang, Mathieu Desbrun, Hujun Bao, Jin Huang

Towards Practical Physical-optics Rendering

Shlomi Steinberg, Pradeep Sen, Ling-Qi Yan

True Seams: Modeling Seams in Digital Garments

Alejandro Rodríguez, Gabriel Cirio

Umbrella Meshes: Elastic Mechanisms for Freeform Shape Deployment

Yingying Ren, Uday Kusupati, Julian Panetta, Florin Isvoranu, Davide Pellis, Tian Chen, Mark Pauly

Unbiased and Consistent Rendering Using Biased Estimators

Zackary Misso, Benedikt Bitterli, Iliyan Georgiev, Wojciech Jarosz

Unbiased Inverse Volume Rendering With Differential Trackers

Merlin Nimier-David, Thomas Müller, Alexander Keller, Wenzel Jakob

Unified Many-Worlds Browsing of Arbitrary Physics-Based Animations

Purvi Goel, Doug L. James

Unsupervised Kinematic Motion Detection for Part-Segmented 3D Shape Collections

Xianghao Xu, Yifan Ruan, Srinath Sridhar, Daniel Ritchie

Variable Bitrate Neural Fields

Towaki Takikawa, Alex Evans, Jonathan Tremblay, Thomas Müller, Morgan McGuire, Alec Jacobson, Sanja Fidler

Variational Quadratic Shape Functions for Polygons and Polyhedra

Astrid Bunge, Philipp Herholz, Olga Sorkine-Hornung, Mario Botsch, Michael Kazhdan

VEMPIC: Particle-in-polyhedron Fluid Simulation for Intricate Solid Boundaries

Michael Tao, Christopher Batty, Mirela Ben-Chen, Eugene Fiume, David Levin

Volume Parametrization Quantization for Hexahedral Meshing

Hendrik Brückler, David Bommes, Marcel Campen

VoLux-GAN: A Generative Model for 3D Face Synthesis With HDRI Relighting

Feitong Tan, Sean Fanello, Abhimitra Meka, Sergio Orts-Escolano, Danhang Tang, Rohit Pandey, Jonathan Taylor, Ping Tan, Yinda Zhang

WallPlan: Synthesizing Floorplans by Learning to Generate Wall Graphs

Jiahui Sun, Wenming Wu, Ligang Liu, Wenjie Min, Gaofeng Zhang, Liping Zheng

Which Cross Fields Can Be Quadrangulated? Global Parameterization From Prescribed Holonomy Signatures

Hanxiao Shen, Leyi Zhu, Ryan Capouellez, Daniele Panozzo, Marcel Campen, Denis Zorin