

Xilong(Logan) Zhou

zhouxilong199213@tamu.edu, <https://xilongzhou.github.io/>

Education

PhD in Computer Science and Engineering, Texas A&M University	<i>August 2018 – Present</i>
MS in Petroleum Engineering, Texas A&M University	<i>August 2014 – August 2016</i>
BE in Petroleum Engineering, China University of Petroleum Beijing	<i>August 2010 – June 2014</i>

Research Interest

I am interested in computer graphics and deep learning. I am focusing on material reflectance modeling and material generation using deep learning technique.

Publication

Xilong Zhou, Milos Hasan, Valentin Deschaintre, Paul Guerrero, Yannick Hold-Geoffroy, Kalyan Sunkavalli, and Nima Khademi Kalantari. “PhotoMat: A Material Generator Learned from Single Flash Photos”, Siggraph 2023

Xilong Zhou, Milos Hasan, Valentin Deschaintre, Paul Guerrero, Kalyan Sunkavalli, and Nima Khademi Kalantari. “A Semi-Procedural Convolutional Material Prior”, Eurographics 2023 (CGF)

Xilong Zhou, Milos Hasan, Valentin Deschaintre, Paul Guerrero, Kalyan Sunkavalli, and Nima Khademi Kalantari. “TileGen: Tileable, Controllable Material Generation and Capture”, Siggraph Asia 2022

Xilong Zhou and Nima Khademi Kalantari. “Look-Ahead Training with Learned Reflectance Loss for Single-Image SVBRDF Estimation”, Siggraph Asia 2022. (TOG)

Xilong Zhou and Nima Khademi Kalantari. “Adversarial Single-Image SVBRDF Estimation with Hybrid Training”, Eurographics 2021 (CGF)

Xilong Zhou, Jenn-Tai Liang, Corbin D Andersen, Jiajia Cai and Ying-Ying Lin. “Enhanced Adsorption of Anionic Surfactants on Negatively Charged Quartz Sand Grains Treated with Cationic Polyelectrolyte Complex Nanoparticles”. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 553, 397-405, September (2018).

Working Experience

Research Intern, Adobe Research	<i>May, 2021 – August, 2021</i>
Research Intern, Adobe Research	<i>May, 2022 – August, 2022</i>
Research Intern, Meta Reality Lab	<i>August, 2022 – December, 2022</i>

Research Experience

Material generator trained on real photos (Siggraph 2023)

- Develop the first material generator trained exclusively on real flash photos

Semi-procedural convolutional material prior (Eurographics 2023)

- Propose a differentiable, tileable, editable and compact semi-procedural material prior

Conditional material GAN (Siggraph Asia 2022)

- Propose a conditional tileable GAN model for material representation and generation

Look ahead training for SVBRDF estimation from a single image (Siggraph Asia 2022)

- Propose an optimization strategy to estimate SVBRDF of materials using meta learning technique

SVBRDF estimation of material from a single image (Eurographics 2021)

- Propose a GAN framework using perceptual loss to estimate the reflectance properties of material
- Propose a hybrid training strategy to address the gap between synthetic and real images

Study adsorption property of nanoparticle used in EOR

- Propose a bilayer adsorption model of nanoparticles

Course Projects

Computational photography & digital image

- Image alignment based on SSD metric; gradient-based image blending; seam carving using dynamic programming; camera calibration and HDR reconstruction; poisson image matting.

Image synthesis & computer graphics

- Implement ray tracer algorithm from scratch to simulate color bleeding, depth of field, reflection/refraction, motion blur, environment mapping, texture mapping, etc;
- Simulate appearance of different materials using spectrum and Cook-Torrance BRDF model;
- Implement radiosity algorithm, volume rendering and mipmap texturing with anisotropic filters.

Physically based modeling

- KD-tree based particle system simulation, flocking system, rigid body simulation, spring structure simulation and fluid simulation.

Teaching Assistant

PETE 612: Unconventional Oil and Gas, 2015F

PETE 321: Formation Evaluation, 2016S

VIST 271/270: Computer for Visualization: 2017S, 2017Su

CSCE 110: Programming, 2021S

CSCE 222: Discrete Structure for Computing, 2018F, 2019F, 2020S

CSCE 221: Data Structure and Algorithm, 2019S

CSCE 441: Analysis of Algorithm, 2019Su, 2021F

CSCE 421: Machine Learning, 2020F, 2022S

Honors & Awards

Student Representative in “Petro Bowl” Contest in ATCE

October 2013

National First Prize of National Petroleum Engineering Design Competition

May 2013

Honorable Mention of Mathematical Contest in Modeling (International)

April 2013

National Second Prize of National Mathematics Modeling Contest

September 2012

Service

Reviewer: SIGGRAPH, SIGGRAPH ASIA

Programming Skills

Python, Pytorch, GLSL , C++, Matlab, Mathematica, Cuda

Extra-Curriculum Activities

Volunteer in the International Triathlon World Championship (2011)

Beijing college student art performance (2010)