

## Xilong(Logan) Zhou

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### Education

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PhD in Computer Science and Engineering, **Texas A&M University** *August 2018 – Present*  
MS in Petroleum Engineering, **Texas A&M University** (GPA 4.0/4.0) *August 2014 – August 2016*  
BE in Petroleum Engineering, **China University of Petroleum Beijing** (GPA 90/100) *August 2010 – June 2014*

### Research Interest

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I am interested in the application of deep learning technique in computer graphics, especially in material appearance modeling and rendering.

### Research Experience

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**Estimation of the reflectance properties from multiple images** *June 2020 – Present*

- Propose a novel optimization strategy using CNN to estimate reflectance properties from multiple input images
- Self-augment strategy is added to constrain the optimization problem

**Estimation of the reflectance properties from a single image** *June 2019 – October 2020*

- Train a CNN and cGAN framework using perceptual loss to estimate the reflectance properties of planar materials
- Propose a hybrid training strategy to address the gap between synthetic and real images
- Results outperforms state-of-art methods and paper is submitted to Eurographics 2021 (under review)

**Study adsorption property of nanoparticle used in enhanced oil recovery** *January 2015 – August 2016*

- Propose a bilayer adsorption model of nanoparticles

### Publication

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**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.

### Selected Projects

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#### 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 methods for image matting.

#### Image synthesis & computer graphics

- Implement a ray tracer algorithm from scratch using C++ 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 rendering;
- 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.

#### Deep learning for computer graphics

- Implement paper “Deep illumination: approximating dynamic global illumination with generative adversarial networks”.

### Teaching

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PETE 612: Unconventional Oil and Gas, Teaching Assistant, Fall 2015

PETE 321: Formation Evaluation, Teaching Assistant, Spring 2016

CSCE 222: Discrete Structure for Computing, Teaching Assistant, Fall 2018, Fall 2019, Spring 2020

CSCE 441: Analysis of Algorithm, Teaching Assistant, Summer 2019

CSCE 421: Machine Learning, Teaching Assistant, Fall 2020

### ***Honors & Awards***

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- 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*

### ***Programming Skills***

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

### ***Extra-Curriculum Activities***

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Volunteer in the International Triathlon World Championship (2011)  
Beijing college student art performance (2010)