

Xi Deng

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Education

Cornell University

DOCTOR OF PHILOSOPHY STUDENT IN COMPUTER SCIENCE

- Advisor: Dr. Steve Marschner.

Ithaca, NY, US

June. 2019 - present

Dartmouth College

M.S. IN COMPUTER SCIENCE

- Advisor: Dr. Wojciech Jarosz.
- Course Work: Computer Graphics, Parallel Computing, Animation, Rendering, Randomized Algorithms, Computational Photography.

Hanover, NH, US

Sept. 2016 - Mar. 2019

Nanjing University of Aeronautics and Astronautics

B.S. IN COMPUTER SCIENCE

- GPA: 88/100, Rank: 2/81.

Nanjing, China

Sept. 2012 - June 2016

Publication

Photon surfaces for robust, unbiased volumetric density estimation.

Dartmouth College, NH

XI DENG, SHAOJIE JIAO, BENEDIKT BITTERLI, WOJCIECH JAROSZ.

ACM Transactions on Graphics (Proceedings of SIGGRAPH), 38(4), July 2019.

Research Experience

Adobe, Emerging Graphic Group

RESEARCH INTERN

- Supervised by Dr. Milos Hasan, Dr. Nathan Carr and Dr Zexiang Xu.

San Jose, CA

May. 2020 - present

Disney Research Lab, Zurich

R&D INTERN IN RENDERING GROUP

- Supervised by Dr. Jan Novak and Dr. Marios Papas. Advised by Dr. Steve Marschner, Dr. Wojciech Jarosz, and Dr. Bernd Bickel.
- Worked on fundamental improvement of an inverse renderer.
- Quickly got acquainted to a large and complex research codebase, fixed inconsistencies.
- Allowed better reuse and combination of information across iterations during Stochastic Gradient Descent optimization.
- Defined a novel hierarchical subdivision scheme criterion that increases detail in important regions.
- Implemented visualization tools for hierarchical subdivision with WebGL.

Zurich, Switzerland

July. 2018 - Oct. 2018

Dartmouth Visual Computing Lab

RESEARCH ASSISTANT

- Worked on "Photon Surface" project under the supervision of Dr. Wojciech Jarosz.
- Generalized "Photon Plane" to "Photon Surfaces", a new set of unbiased volumetric density estimators.
- Improved participating media renderings by defining a set of novel path contribution estimators named Single Scattering Photon Plane (SSPP).
- Eliminated the noisy singularities from SSPP by showing a method to approximate Multiple Importance Sampling (MIS) in a continuum strategies.
- Improved multi-scattering Photon Plane by defining triple-planes and allowing MIS within triple-planes.

Hanover, NH

June. 2017 - Mar. 2019

DALI Lab

RESEARCH ASSISTANT

- Supervised by Prof. Lorie Loeb.
- Developed a VR Website which allows users to "walk" around Moosiluake lodge of Dartmouth College online.
- Built models of the house with Photoscan, refined models with Maya, Create models of missing objects in Maya.

Hanover, NH

April. 2017 - Oct. 2017

Projects

Yangtze: An Auto Panorama Image Stitching Tool

Dartmouth College, NH

SOFTWARE ENGINEER

Feb. 2018 - March. 2018

- Created a full-featured automatic panorama stitching project in C++.The tool allows auto stitching multiple images and creating 360 degree Panorama.
- Implemented Harris Corner detector and RANSAC algorithm.
- Implemented plane projection. Implemented sphere projection that allows 360 degree of view with image straightening.

Nori-CS187: Physically-Based Volumetric Renderer.

Dartmouth College, NH

SOFTWARE ENGINEER

Mar. 2017 - June. 2017

- Created a physical based renderer in C++.
- Implemented Medium and phasefunction classes. Applied Woodstock algorithm to render heterogeneous mediums.
- Implemented Emitter classes including points light, area lights and distant light with Monte Carlo. Implemented BRDF classes to simulate materials including phong, blinn phong, isotropic and an-isotropic microfacet, mirror and dielectric.
- Implemented various of sampling methods and applied Monte Carlo in Ray-tracing including naive path tracing, NEE and multiple importance sampling path tracing. Applied Russian Roulette to randomly stop the tracing.
- Developed texture system to supports image texture and procedure texture including Perlin noise, fbm and turbulence. The renderer supports 2D texture as well as 3D texture.

Music Scene: A Real-time Rendering Demo

Dartmouth College, NH

SOFTWARE ENGINEER

Sept. 2016 - Nov. 2016

- Created a real time rendering demo in WebGL, which animated in pace with given music rhythms.
- Implemented the parametric and stochastic L-system in JavaScript to simulate growing plants.
- Developed shaders which support procedure texture.
- Developed a particle system.

Rakonto: A mobile platform for learning languages through interactive fiction

Dartmouth College, NH

SOFTWARE ENGINEER & UI DESIGN

Mar. 2017 - Jun. 2017

- Implemented a mobile app for learning languages through interactive fiction.
- Designed the user interface and conducted user study.

Story Around: An AR android App

Dartmouth College, NH

SOFTWARE ENGINEER

Jan. 2017 - March. 2017

- Implemented an augmented reality APP that helps user to discover adventures in physical world based on current location. Users can read and post stories and pictures at the spots they have been.

Honors & Awards

2019-2020	Booking.com Fellowship , Cornell University	NY, U.S.A
2016-2019	Master Scholarship , Dartmouth College	NH, U.S.A
June, 2016	Merit Graduates , Nanjing University of Aeronautics and Astronautics	Nanjing, China
June, 2015	Provincial Excellent Student Cadre , Jiangsu Province	Jiangsu, China
Oct, 2014	First Prize , NUAU Technology Innovation Program Competition	Nanjing, China
2013-2016	First-Class Merit Scholarship , Nanjing University of Aeronautics and Astronautics	Nanjing, China
Aug, 2014	Excellent Youth Olympic Volunteer , Chinese Olympic Committee	Nanjing, China
June, 2012	Provincial Excellent Student Cadre , Sichuan Province	Sichuan, China

Skills

Proficient in	C/C++, GLSL, python, Maya
Experience in	Java, JavaScript, CUDA, MATLAB, Mathematica, 图形学