none

Tianyu Cheng

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EDUCATION

UNIVERSITY OF TEXAS

M.S. in Computer Science
May 2017 | Austin, TX
College of Natural Science
Five Years BS/MS Integrated Program
Major GPA: 3.81 / 4.0

B.S. in Computer Science
May 2016 | Austin, TX
College of Natural Science
Major GPA: 3.95 / 4.0

COURSES

UNDERGRADUATE

Operating System
Algorithm & Complexity
Artificial Intelligence
Programming Languages
Computer Vision/Machine Learning
Data Mining
Network & Privacy

GRADUATE

Compiler
Computer Graphics
Autonomous Robots
Software Design
Advanced Operating System
Numerical Linear Algebra

SKILLS

LANGUAGES

C/C++
Java
Python

INTERESTS

Graphics
System
Compiler
Web

LINKS

Github: **tycheng**
LinkedIn: **tianyu-cheng**
Homepage: **tycheng.github.io**

EXPERIENCE

APPLE | GPU Architectural Validation Team

Jun 2017 – Current | Austin, TX

- create software to verify architectural and micro-architectural functionality, performance, and power of pre-silicon hardware designs
- review specifications, develop attributes, tests and coverage plans, and define methodology and test benches

UNIVERSITY OF TEXAS AT AUSTIN | Research Assistant

Jan 2017 – May 2017 | Austin, TX

- measured performance of non-volatile memory libraries
- port git to use transactional file system

APPLE | GPU Architectural Validation Team

May 2016 – August 2016 | Austin, TX

- developed an internal web front-end tool for performance visualization
- implemented and validated counters in performance model
- worked on numerics validation for GPU driver

APPLE | GPU Architectural Validation Team

May 2015 – August 2015 | Austin, TX

- developed an internal server-side tool with Ruby on Rails for test automation
- developed a web front-end data analysis tool for data visualization
- worked on numerics validation for GPU driver

PUBLICATIONS

TXFS Leveraging File-System Crash Consistency to Provide ACID Transactions

USENIX ATC '18

- Yige Hu, Zhiting Zhu, Ian Neal, Youngjin Kwon, and Tianyu Cheng, The University of Texas at Austin
- Vijay Chidambaram, The University of Texas at Austin and VMware Research; Emmett Witchel, The University of Texas at Austin

PROJECTS

PLANET RENDER | Computer Graphics

- a procedural terrain rendering program in OpenGL/GLSL
- procedural terrain generation based on Perlin noise
- LoD (level-of-detail) terrain/ocean rendering with CDLOD (continuous-distance LoD)

RAY TRACER | Computer Graphics

- a multithreaded ray tracer based on Whitted model
- used KD-tree and SAH for ray-object intersection optimization
- supports glossiness and depth of field using distribution ray tracing

LATTE COMPILER | Deep Learning Compiler

- a source-to-source compiler for deep neural network
- AST pattern match for parsing deep neural network architecture
- loop structure optimization with Intel MKL(BLAS) library
- data structure transformation for cache optimization