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: 3.75 / 4.0

B.S. in Computer Science
May 2016 | Austin, TX
College of Natural Science
Turing Scholars Program
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 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 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

DIGITAL MEDIA INSTITUTE | Student Technician

June 2014 – December 2014 | Austin, TX

- back-end design and implementation for an educational game in Unity
- developed several third-party tools to facilitate game development

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

3D ANIMATOR | Computer Graphics Animation

- a simple 3D animator for 3D format PMD/PMX
- implemented using OpenGL/GLSL for model rendering
- supports FK (forward kinematics) and simple IK (inverse kinematics)

LATTE COMPILER | Deep Neural Network, Source-to-Source

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

GAMEL | Scala DSL

- a game scripting DSL(domain-specific language) using Scala and Swing
- designed and implemented a set of syntax for basic game object creation and manipulation
- implemented a demo of the classical game Snake using GameL