

# Tianyu Cheng

<http://tycheng.github.io>  
tianyu.cheng@utexas.edu | Phone (512).517.1107

## 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: 3.9 / 4.0

#### B.S. IN COMPUTER SCIENCE

May 2016 | Austin, TX  
College of Natural Science  
Turing Scholars Program  
Major GPA: 3.9 / 4.0

## COURSES

### UNDERGRADUATE

Algorithm & Complexity  
Computer Vision  
Artificial Intelligence  
Programming Languages  
Operating Systems  
Data Management  
Data Structure

### GRADUATE

Compilers  
Computer Graphics  
Autonomous Robots  
Software Design

## SKILLS

### PROGRAMMING

C/C++   
Java   
C#   
Python 

### WEB DEVELOPMENT

HTML/CSS   
JavaScript   
Node.js   
Django 

### COMPUTER GRAPHICS

OpenGL   
WebGL   
GLSL 

## LINKS

Github: [tycheng](https://github.com/tycheng)  
Homepage: [tycheng.github.io](http://tycheng.github.io)

## EXPERIENCE

### APPLE | GPU VALIDATION TEAM

June 2016 – August 2016 | Austin, TX

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

### APPLE | GPU VALIDATION TEAM

June 2015 – August 2015 | Austin, TX

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

### DIGITAL MEDIA INSTITUTE | STUDENT TECHNICIAN

June 2014 – December 2014 | Austin, TX

- worked on the back-end OOP design and implementation of an educational game with Unity and C#
- developed several third-party tools to facilitate game data management in Python, and provides a sanity check of the validity of the data
- refactored back-end codes to comply with MVC pattern

## PROJECTS

### 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

### 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 manipulation
- attaches a demo of the classical game Snake using GameL

### 3D MODEL VIEWER | OPENGL GLSL

- a shader-based OpenGL program that renders 3D models of format PMD/PMX(Polygon Model Data/eXtend) with simple animation
- currently being ported to web platform using WebGL and CoffeeScript

### ONLINE LINEAR ALGEBRA SOLVER | PYTHON DJANGO

- a web project aiming at teaching students linear algebra by example
- solve linear algebra problems and show the individual steps, including row reduction, matrix multiplication, inverse of matrices, etc

### ONLINE WEBSITE DESIGNER | UI & UX DESIGN

- a Java/Struts web project for UI/UX design
- provides a user-friendly interface to customize websites by drag&drop
- CREDIT: This project owes the inspiration to online website editing tools, e.g. Weebly and Yola.