Victor Jiao

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Education

The University of Chicago '18 *(**MS** in Computer Science)*

- Course Highlights: Self Driving Vehicles, Advanced Data Analytics, Climate Foundations

The University of Chicago '18 *(**Honors BS** in Computer Science)* Major: 3.72 / 4.0

- ACM-ICPC Midwest Regional Competition, placed 19/140 in 2015, 11/140 in 2016
- Member of Voices in Your Head, a nationally acclaimed, competitive, collegiate a cappella group
- UChicago: Computer Graphics, Game Construction, Distributed Systems, Parallel Computing
- TTIC (PhD Coursework): Machine Learning, Unsupervised Learning, Speech Technologies

Stuyvesant High School *(Graduated June 2014)* 95.4 / 100

- USA Junior Mathematics Olympiad participant, top 250 nationally 10th grade and under
- USA Physics Olympiad participant, top 400 nationally

Skills

Languages

C, **C++**, Python, Java, PHP/Hack, Haskell, Javascript, GLSL, Bash, HTML/CSS

Libraries and Tools

Ogre3D, MapReduce, SDL, OpenGL, scikit-learn, NumPy, Git, LaTeX, AutoCAD, Makefile, Linux.

Experience

Facebook *(Software Engineering Intern)* PHP/Hack, Hive/MySQL Summer 2017

- Created a new data pipeline for storing features within Facebook's payment fraud detection system.
- Designed, researched, and implemented novel data compression algorithms for that pipeline
- Created a new flexible feature generation system on top of the existing system, reducing the required feature count by an order of magnitude.

Google *(Software Engineering Intern)* C++, GLSL Summer 2016

- Implemented the first 3D shadow mapping algorithms for Skia, Google's 2D graphics engine
- Designed novel modifications to conventional shadow mapping to allow for several types of lighting
- Designed comprehensive tests to analyze performance over a variety of rendering contexts.

Projects

Procedural Terrain Generation. *C++, SDL*

Built a flexible and powerful framework for supporting randomized terrain generation. Models climate, erosion, and rainfall dynamics in real-time.

Weather Modeling. *Python, scikit-learn, NumPy*

Analyzed weather data from airports by using statistical machine learning models. The model learned a higher-level sense of climate, and achieved a 15-30% accuracy boost beyond naive methods.

Pirate Panic. *C++, Ogre3D, OpenGL*

Led a team of five students to code a 4-way multiplayer game including sky and water rendering, a robust server design, a custom physics engine, and a simple AI. Personally worked on the graphics engine and integrating all of the components of the final game together.

Terrain rendering engine. *C++, OpenGL*

Rendered height maps and texture bitmaps with level of detail and deferred rendering algorithms. Includes render systems for grass, water, and rain; fog effects; and detail-mapping.

Distributed Key-Value Store. *Python*

Implemented multi-paxos, a distributed algorithm for consistent and fault-tolerant key-value storage. Multi-paxos is a more efficient variant of the classic Paxos algorithm.