YUXUAN MEI

August 2019

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EDUCATION

Ph.D. Computer Science, University of Washington, School of Computer Science & Engineering, Expected 2024.

B.S. Computer Science, Columbia University, School of Engineering and Applied Sciences, *summa cum laude*, May 2019.

RESEARCH INTERESTS

Computational design and fabrication; physically based computer graphics and simulation.

HONORS & AWARDS

CSE Research Fellowship, University of Washington, 2019.

Russell C. Mills Award, Columbia University, 2019.

Dean's List, Columbia University, 2015 - 2018.

RESEARCH EXPERIENCE

Supervised by Professor Adriana Schulz, Jun 2019 - Present.

Under the supervision of Prof. Schulz, I'm currently exploring my interests in simulation for 3D printing (FDM) as well as computational design for knitting.

Supervised by Professor Changxi Zheng, Sep 2018 - May 2019.

Under the direction of Professor Zheng and one of his PhD students, I worked on audio watermark removal. I first evaluated the watermark insertion patterns by autocorrelating watermarked audios and obtained a watermark estimate through averaging watermark segments. Then I tried methods from related domains such as noise removal and signal processing, but they were not ideal: important frequencies were lost and music quality lowered. Since we were aware of the noticeable results that neural networks have achieved in the audio domain, we switched to learning-based methods. I wrote scripts to generate training data on demand and we have evaluated networks of different configurations. In addition, I attempted to come up with a project idea in fabrication and made plans to carry out the idea.

Supervised by Professor Steven Feiner, Sep 2017 - Dec 2017.

Under the direction of Professor Feiner and three other researchers in the CGUI lab, I assisted with exploring different foliage visualizations in Unity and wrote documentation for future reference. Different methods were experimented: native Unity trees and particle systems, cloth simulation package ObiCloth with custom calligraphy materials, procedural ivy generation package Reallvy, among others. To achieve some specific effects, I modified the Reallvy source scripts to include new functionalities such as switching between different leaf textures.

Supervised by Professor Douglas Almond and Professor Shuang Zhang, Sep 2016 - Jan 2017.

Under the direction of Professor Almond in Columbia's Economics Department and Professor Zhang from the University of Colorado Boulder, I assisted with obtaining pollution monitoring data from official websites of environmental protection departments of some Chinese provinces. We were interested in understanding the change in pollution emission after a new emission standard came into effect and what kind of economic implications it had. I wrote Python scripts (requests and selenium packages) to crawl static and dynamic web pages with Redis for job scheduling and cleaned data to CSV files and SQLite databases for further statistical analysis.

TEACHING EXPERIENCE

Columbia University in the City of New York

COMS W1004 Introduction to Computer Science in Java: Fall 2016, Spring 2017, Fall 2017, Spring 2018, course assistant; Fall 2018, head teaching assistant for Professor Adam Cannon; Spring 2019, head teaching assistant for Professor Paul Blaer.

COMS W4160 Computer Graphics: Spring 2018, Spring 2019, teaching assistant for Professor Changxi Zheng.

COMS W4167 Computer Animation: Fall 2018, teaching assistant for Professor Eitan Grinspun.

WORK EXPERIENCE

Software Engineering Intern at Google, New York, NY, May 2018 - Aug 2018.

Designed and implemented a FlumeJava pipeline to process front end activity logs to generate an activity graph;

Refactored an internal tool and incorporated the activity sequence visualization into the tool;

Reviewed internal use cases with UX, PM, and other SWE teams to improve the pipeline, documented the general usage, and familiarized other teams with example use cases.

Engineering Practicum Intern at Google, Los Angeles, CA, May 2017 - Aug 2017.

Created an overview page in Keyword Planner that displays forecast data using Angular Dart and Sass;

Created a data service on the front end server to serve data for the overview cards using Java;

Implemented a backend API to support location-based forecast data for the data service using Java;

Collaborated with another Google team to coordinate sharing components and styles with our project.

Programming Intern at Yik Data Analytics, Nanjing, China, May 2016 - Aug 2016.

Under the guidance of Professor Qiao Wang at Southeast University, researched on line simplification algorithms and approximation theory, and implemented some algorithms;

Processed and stored OpenStreetMap data in SQLite databases using Python, and presented a plan of map simplification program to colleagues.

EXTRACURRICULAR EXPERIENCE

Berthouzoz Women in Research Lunch, 2019.

Helped with the logistics of the event at SIGGRAPH 2019.

Columbia Womxn in Computer Science, 2016 - 2019.

Connected with corporate sponsors to fund events and send women to conferences like Grace Hopper Celebration;

Planned community events for students (including the first diversity hackathon at Columbia), and worked with companies to plan events such as tech talks and recruiting sessions.

Columbia Science Review, 2015 - 2018.

Illustrated for club publications to promote science; topics include quantum computing and cryptography.

ADDITIONAL INFORMATION

Languages: Mandarin (native speaker), English (fluent), Japanese (intermediate).

Programming Languages: Python, Java, C/C++/C#, Dart, HTML/CSS/Javascript, SQL.

Software/Technologies: git, LaTeX, PyTorch, OpenGL, FlumeJava.

Other Interests: teaching, singing, walking, drawing, cooking.