Liam Tyler

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Education

Major: BS in Computer Science, Math Minor

University of Minnesota – Twin Cities | GPA: 3.98/4.0 (Honors Program) | Expected graduation date: Spring 2018

Relevant Coursework:

- Completed: Graphics and games, algorithms and data structures, program design, operating systems 2, machine architecture, software engineering, databases, internet programming
- Currently: Advanced Algorithms, graphics (graduate level), directed research, advanced linear algebra

Work History

UMN – CSCI 1113: Introduction to C++ Teaching Assistant *Fall 2015-Present*

- Lead up to 80 students through weekly labs and hold office hours
- Assumed lead TA responsibilities mid-semester, which include managing all TAs and labs
- Created new course content
- Guest lecture during professor absence

UMN – Research Assistant *May 2017-August 2017*

- Converted a 2D cancer cell simulator from Matlab to C++ and sped it up thirty-fold
- Added 1D support, a testing framework, and a statistical analysis tool

Seagate -- Software Developer Intern *May - August 2016*

- Improved functionality and layout of existing website
- Designed new website using Django and Nginx, and integrated with company servers and databases

Skills

Languages: C++, C, Python, Java, Django, HTML, CSS, Javascript, jQuery, SQL, PHP, x86 Assembly

Graphics: OpenGL, GLSL, Unity, SDL, Tkinter, Swing

Software and Tools: Git, Microsoft Office Suite, Jenkins, Ansible, Nginx, Apache

Operating Systems: Linux (Ubuntu, Centos, Arch), Windows (XP, Vista, 7, 8, 10), and Mac

Projects

In progress *(Research Project):* Language: C++

- Visualizing how cancer cells migrate throughout the body by using timeline trend analysis and overlaying spatial configurations of many cells

Completed:

Photoshop (Program Design): *Language: C++*

- Made a painting app that also allowed for image loading, saving, and filtering

Nutritional Receipt Reader App (Minnehack 2017): *Language: Java & Python*

- Lets user take a picture of a grocery receipt, analyzes it using OCR, and rates how healthy your shopping was

Implemented an OS from scratch (Operating Systems 2): *Language: C*

- Programmed an OS simulator how to schedule threads and processes, implemented many system calls such as fork(), write(), and execv(), and implemented a virtual memory system.

Blinn-Phong Toon Shader (Graphics and Games): *Language: C++, OpenGL, GLSL*

- Wrote graphics shaders to give different 3D models realistic lighting effects and different animation styles

Space Invaders (Intro class): *Language: Python*

- Used Tkinter to recreate Space Invaders, implementing pixel perfect collision detection

Extra Curricular Activities

- University of Minnesota Twin Cities Climbing Team – Officer *May 2016 – May 2017*
  - Help coach 50 people three times a week, and managed the team email
- 2015 ICPC regional competition participant
- Marathon runner and competitive rock climber