MINSI SUNG

Software Engineer with 6 Years of Experience in Computer Graphics

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EXPERIENCE

R&D Engineer II

ECAD Team, Ansys

Jun 2021 – Present | Vancouver, Canada

- Deliver robust software development focusing on geometric operation implementation and user interface design using **C++** and **MFC** for an ECAD desktop application.
- Work on the projects to integrate, implement, maintain and test the tools of the 3D geometry editor for the new large-scale commercial product in Windows and Linux.

Software Engineer Intern

Lumerical, Ansys

Feb 2021 – May 2021 | Vancouver, Canada

- Implemented geometry methods using **Parasolid** and designed the user interface to interact and display the graphics of the result using **C++** and **Qt** in **Linux** environment.
- Involved in the agile development, bug verification and maintenance of products.

Research Assistant

CAD/CAM Lab, University of British Columbia

Sept 2018 – Jan 2021 | Vancouver, Canada

- Constructed a collision detection algorithm using voxel meshing that increases efficiency by 20% for grouping validation of different machine tool configurations.
- Built a user-friendly automatic components grouping system to generate kinematic chains of multi-axis machine tools for machining simulation in **C++**.
- Developed a 3D interactive environment to read STL files and kinematic chains in URDF of machine tools for real-time machine movements simulation with **OpenGL** in **Qt**.

PROJECTS

Multithreading, Inter-Process Communication, GRPC protocol service (Projects of CS 6200 Graduate Introduction to Operating Systems)

Sep 2023 – Dec 2023

- Implemented boss/worker model multi-thread server and client using **pthread** in **C** to overcome the file transferring performance issue.
- Utilized POSIX share memory API for shared memory-based IPC to communicate and transfer files between proxy and cache for the requests from clients.
- Developed a rudimentary distributued file system employing synchronous and asynchronous **gRPC** calls including store, fetch, delete, list, etc.

Boolean union operation speed improvements using Boost Polygon

Sept 2021 – Oct 2021

- Researched and investigated the feasibility of implementing union operations to resolve the computing bottleneck for large IC layout design files with **Boost Polygon**.
- Achieved 20+ times faster results and got employed by different products.

Remesher with Four Processes for Large Triangular Mesh Models (Final project of CPSC 524 Computer Graphics: Modelling)

Feb 2019 – Jun 2019

- Completed the remesh process with a user friendly API in **C++** by iterating through geometry models for mesh refinement, edge collapse, edge flipping and smoothing.

SKILLS

Programming Languages
C/C++, Python, C#, Java, CSS, HTML, Javascript, Matlab

Tools
gRPC, OpenGL, Qt, MFC, Git, Visual Studio

LEADERSHIP

President

Taiwanese Graduate Student Association in Vancouver

Feb 2020 –Feb 2021
Vancouver, Canada

Captain

Baseball Team in Mechanical Engineering Department

July 2016 – July 2017
Tainan, Taiwan

EDUCATION

Online Master of Science in Computer Science

Georgia Institute of Technology United States

Aug 2023 – Present

Master of Applied Science in Mechanical Engineering

University of British Columbia Canada

Sept 2018 – Jan 2021

Bachelor of Engineering in Mechanical Engineering

National Cheng Kung University Taiwan

Sept 2013 – Jan 2018