

# MINSI SUNG

## Software Engineer with 3 Years Experience on CAD/CAM and Computer Graphics Software Development

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## EXPERIENCE

### Research Assistant

#### CAD/CAM Lab at University of British Columbia

Sept 2018 – Jan 2021

Vancouver, Canada

- Built a user-friendly automatic components grouping system to generate kinematic chains of multi-axis machine tools for machining simulation in C++.
- Constructed a collision detection algorithm using voxel modeling that increases efficiency by 20% for grouping validation of different machine tool configurations.
- Developed an environment to read STL files and kinematic chains in URDF of machine tools and utilized OpenGL to simulate machine movements.

### Intern

#### Industrial Technology Research Institute (ITRI)

July 2018 – August 2018

Nantou, Taiwan

- Constructed an identification algorithm for the quality of machining path from CAM by calculating federate limits and by anticipating acceleration configurations.
- Create Matlab visualization on normal errors between position command and position feedback on the machining surface for easier observation.

### Research Assistant

#### National Cheng Kung University

July 2017 – Jan 2018

Tainan, Taiwan

- Cooperated with Tech Coordinate Co., Ltd to validate the postprocess that uses the company-developed numerical solution with the analytical solution derived from coordinate transformations.
- Implemented a virtual machining environment in JAVA to read G-Code and CAD models of 5-axis machine tools designed in Solidworks to detect collisions.

## PROJECTS

### Construct Transfer Learning Model for COVID-19 classifier (Final project of CPSC 340 Machine Learning and Data Mining)

Jan 2020 – Apr 2020

- Used Pytorch to Implement transfer learning that uses ResNet18 and VGG16 as pre-trained models for constructing multi-class classifiers to classify chest X-ray images into three classes; COVID-19, Pneumonia, and Normal.
- Got 90% average classification accuracy using VGG16 with fine-tuning the last layer.

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

Feb 2019 – Jun 2019

- Iterated through geometry models for mesh refinement, edge collapse, edge flipping and smoothing to complete the remesh process with a user friendly API in C++ following the paper "A Remeshing Approach to Multiresolution Modeling".

## SKILLS

### Programming Languages

C++, C#, Python, Matlab, Java, HTML, CSS, Javascript, React

### Tools

Qt, Git, Visual Studio, NX, ANSYS-Flent, Solidworks

## LEADERSHIP

### President

#### Taiwanese Graduate Student Association in Vancouver

Feb 2020 – Ongoing

Vancouver, Canada

### Captain

#### Baseball Team in Mechanical Engineering Department

July 2016 – July 2017

Tainan, Taiwan

## HOBBIES

Baseball

Photography

Cycling

## LANGUAGES

Mandarin(Native)

English

Korean



## EDUCATION

### MASc in Mechanical Engineering

#### University of British Columbia, Canada

Sept 2018 – Jan 2021

### BEng in Mechanical Engineering

#### National Cheng Kung University

Sept 2013 – Jan 2018