Wei-Han Hui (Ambrose)

Email: ambrosehui0105@gmail.com
Website: https://lp65082001.github.io

Physical modeling and ML/DL application. I have extensive experience in constructing and applying physical models. Proficient in mathematical modeling, simulation tools, and multiscale simulations, I also possess a solid background in the application of machine learning and deep learning. I have a track record of successful interdisciplinary collaborations, demonstrating excellent communication and problem-solving skills. Committed to translating theoretical knowledge into practical applications to solve complex real-world problems.

Experience

09/2019 to 08/2023

Ph.D. project
National Taiwan university, Taipei

Physical modeling

- Temperature effect and crosslink effect in collagen.
- The conformation of Ion channel and ion pathway.
- The thickness prediction of IMCs layer in Cu-Sn soldering.
- Linear polymer model mapping from atomistic model to coarse-grained model with multi-target fitting.
- The absorption mechanisms between graphene and small molecule.

ML/DL application

- Protein function prediction with Graph neural network,
- Osteogenesis imperfecta lethality prediction with graph neural network.
- Collagen strain prediction with XGboost.

07/2022 to 12/2022

Deep learning intern (object detection)
Industrial Technology Research Institute, Hsinchu County

- Unbalanced object detection
- Active learning
- Deploy models on the Google Cloud Platform

Skill Highlights

- Molecular dynamics simulation
  - LAMMPS, NAMD
- Coarse grained model
  - Boltzmann inversion method
- Numerical simulation
  - FEM, FVM
- ML/DL/RL models (methods)
  - XGBoost, SVM
  - CNN, YOLO, GNN
  - GA, CEM
- ML/DL framework
  - Scikit-learn
  - Tensorflow (Keras)
  - Pytorch (Geomrtric)
- Programming language
  - Python, Matlab, C++

Education

- **Ph.D.**, Artificial Intelligence center of Department of Civil Engineering, National Taiwan University 09/2019-08/2023
- **M.S.**, Department of Civil Engineering, National Taiwan University 09/2017-07/2019
- **B.S.**, Department of Civil Engineering, Chung Yuan Christian University 09/2012-07/2016