



# Mutian Xu

Homepage: [mutianxu.github.io](https://mutianxu.github.io)

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Irvine, CA

## EDUCATION

**2018.09-2020.03** *Universtiy of California, Irvine* **Computer Engineering (Master, GPA 3.59/4.0)**

**Coursework:** Introduction to AI, Design and Analysis of Algorithms, Computer Architecture, Operating System, Information Retrieval, System Security, Project in Computer Vision, High-performance Computing, online course of Machine Learning & Deep Learning.

**2014.08-2018.06** *Xidian University, China* **Electromagnetics Tech (Bachelor, GPA 3.56/4.0)**

**Coursework:** Linear Algebra, Probability Theory, Numerical Computational Physics, C Language Programming, Microcomputer Principle and System Design, Digital Circuit and Simulated Circuit, Singlechip Microcomputer.

## PROJECT EXPERIENCE

**2019.07-2020.03** *Research Internship at Multimedia Lab, Shenzhen Institutes of Advanced Technology*

(Topics: **3D point cloud processing and Deep learning**. Supervised by Prof. Yu Qiao)

- **Have submitted a paper as the 1st author for ECCV2020.**
- Read related papers and explore the limitations of current methods in 3D point cloud classification and segmentation tasks;
- Mainly based on the property such as permutation invariance of 3D point cloud data to design the novel model combined with different methods and mechanisms;
- Use Pytorch on the coding level to realize algorithms and do experiments on various datasets.

**2019.04-06** *3D Object Reconstruction Based on Structured Light*

- Implement image rotation, camera calibration and triangulation;
- Use thresholding distances, user assisted pruning and hole filling for mesh-clean and smoothing;
- Use MeshLab for 3D alignment and Poisson reconstruction;
- Use Blender to show the final result.

**2019.04-06** *The Parallel Implementation on GA for Solving TSP*

- Implement the Genetic Algorithm on the Traveling Salesman Problem;
- Use the multiprocessing library of python to parallelize the initial population and the evaluation parts;
- Parallelize the greedy algorithm and add non-migration and migration methods on previous work.

**2019.02-04** *Design and Implementation of Search Engine Based on Inverted Index and Merging*

- Use the XML tree to crawl the URL of the UCI ICS School homepage, and identify the URL with the most external links;
- Search the crawled webpage using BeautifulSoup to get the content of the body part of the webpage, extract keywords using NLTK tokenizer, and use TF-IDF technology to inverted-index the text;
- Design a GUI interface to facilitate the user to complete the search.

**2019.01-03** *Artificial Intelligence Course Project: Othello Game*

- Write Python code with object-oriented thinking, split the whole program into four files, which are responsible for board, player, AI and game classes, making the whole structure clear, portable and easy to maintain;
- Establish an imaginary enemy, use the min-max and the alpha-beta pruning algorithm, set the weight of the board position to establish an evaluation function, and let the AI train through self-competition to continuously optimize the chess tricks;
- Let two AI battle and test the performance of algorithms.

## TECHNICAL SKILLS

Programming Language: Python, java, C++

Tools: Pytorch, Numpy, Pycharm, Jupyter, Linux, Matlab, Octave, Eclipse

## CERTIFICATE

TOFEL: 104

GRE: 325

2017 second-class school-level scholarship&2016 third-class school-level scholarship.

## ABOUT ME

I have a strong interest in Computer Vision. Although just stepped into this field, I have been participating in different projects and high-quality research, which can prove my potential in this field. In my daily life, I have got the Piano Professional Certificate Level 10 and the third place in school singer contest. I was a department leader of my undergraduate student union. I believe these experience, great enthusiasm and self-motivation will be my driving force in this field.