Jian Wu

Software developer · Master Student

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"Never be afraid of telling the world who you are."

Education

University of Copenhagen

Copenhagen, Denmark

M.S. in IT and Cognition

Sep. 2016 - Exp. Aug. 2018

- Major study:
  - AI: Artificial Intelligence and Multiple Agents(DTU)
  - Machine Learning: Advanced Topics in Machine Learning, Introduction to Data Science
  - Computer Vision: Advanced Topics in Image Analysis, Vision and Image Processing
  - NLP: Language Processing(I & II), Cognitive Science(I & II & III)
  - Programming: Scientific Programming(Python)
- Master Thesis: Contact Forces simulation based on Deep learning, supervised by Kenny Erleben

Lanzhou University

Lanzhou, China

B.S. in Electronic Information Science and Technology

Sep. 2011 - Jul. 2015

- Major study
  - Advanced Mathematics
  - Circuit Design: Basis of Circuit Analysis , Analog Electronic Circuits , Digital circuit and logic design
  - Signal Processing:Signal and System,Communication Fundamentals,Digital signal processing , Digital image processing
  - Data structure and Programming: Data Structure, C/C++ programming language
- Graduated from Theory based classes program(The best 18 students selected from overall 150 students.)
- Overall GPA 80/100, Major GPA 83/100, Mathematics related GPA 91/100.
- Bachelor Thesis: design of chaotic circuit based on memristor(Final Grade: 98/100)

Research Experience

Contact forces simulation based on deep learning

Copenhagen, Denmark

Master Thesis

Feb. 2018 - Exp.Sep. 2018

- `https://github.com/JaggerWu/Deep-Contact`
- Still on working
- Have finished 2D simulation based on SPH method
- Now working on learning model design(Hypothesis: CNN + RNN/LSTM) and will try to make it work on 3D simulation.

Advanced Topics in Image Analysis

Copenhagen, Denmark

Implementing the algorithms mentioned in popular Computer Vision paper

Nov. 2017 - Jan. 2018

- `https://github.com/JaggerWu/Advance-Topic-in-Image-Analysis`
- The whole project is consist of three main parts, including solutions for three basic problems in Image Analysis, Segmentation, Objects Recognition, 3D reconstruct
- The segmentation part mainly use mean-shift cluster.
- The Objects Recognition part mainly using CNN (AlexNet) with pre-processing the original images.
- The 3D part mainly focus on Fundamental Matrix estimation, including choosing correct match points by RANSAC and optimize matrix estimation.

Weed detection based on CNN

Copenhagen, Denmark

Free topics project in DIKU

Sep. 2017 - Nov. 2017

- `https://github.com/JaggerWu/weed-recognization`
- Trained CNN model for classification insteaf of classical color and texture analysis.
- Analyzed the performance of CNN on Image classification with pre-processing and without pre-processing

Artificial Intelligence with Multiple Agents

Copenhagen, Denmark

The final project for AI course in DTU

Jan. 2017 - Jun. 2017

- `https://github.com/JaggerWu/AI_Prog_Proj`
- You can find the final solution examples in YouTuBe.
  - `https://youtu.be/kr02LBVFr-Y`
  - `https://youtu.be/6SLdyZth9mY`
- The project was about designing algorithm which could play most pushing/pulling box game.(The game was to push or pull boxes to the correct position by single or multiple agents)
- Designed the algorithm based on basic breadth-first search and depth-first search algorithm
- Tried the hottest Reinforcement Learning, but the final result was not the best.

Photometric Stereo

Copenhagen, Denmark

Personal interesting project

Jan. 2017 - Feb. 2017

- `https://github.com/JaggerWu/Photometric-Stereo`
- Reconstruct 3D image based on the same image in different lights

Sentiment Analysis

Copenhagen, Denmark

Project for Natural Language Processing

Jan. 2017 - Apr. 2017

- `https://github.com/JaggerWu/Sentiment-Analysis`
- Research two methods applied in Sentiment Analysis, Bag of Words and Word2Vec
- Applied different machine learning algorithm on classify sentiment words, including SVM, Random Forest, Naive Bayes classifier.

Extraction of the moving object contour from video

Lanzhou, Denmark

Digital image processing curriculum design

Sep. 2014 - Dec. 2014

- Extract numerous frames of images in the video for simple image processing and comparing.
- Designed statistical algorithm and getting the final profile.

Intelligent piano spectrum identification system

Lanzhou, China

Funded by Digital Signal Processing Lab in Lanzhou University

Jul. 2012 - Jun. 2013

- Writing intelligent piano spectrum identification system which can listen to the song and turn it into harmonica tone.
- Skillfully used digital to analog conversion, the discrete Furier transform, fast Furier transform and other related knowledge.
- The related algorithms are completed by my own writing. Taking the piano song for sampling, using the discrete Furier transform analysis in time domain into frequency domain analysis, frequency of each note is obtained to determine all the notes.; adding different harmonics to change its timbre.

English study software

Lanzhou, China

The final project for C++ language course

Jun. 2013, Aug. 2013

- The software can realize the dictionary, repeater and vocabulary testing function.
- Finally it was sold to a local primary school with value CNY 200.

Leaf Species Recognition based on Neural Network

Lanzhou, China

Funded by Innovation and Entrepreneurship Program from Gansu Province Government

May. 2013 - Dec. 2013

- Pre-processing for each image was to extract each leaf scan from complicated background.
- The main learning process is to extract SIFT feature from the leaf scan images and then using 5-layers Neural Network to classify these feature data.

Working Experience

CSIS security Group A/S

Copenhagen, Denmark

Full Stack Engineer

Jan. 2017 - PRESENT

- `https://www.csis.dk/`
- I am working as a part-time full stack developer in CSIS, the duty job includes designing database, building the API and frontend interface, writing unit test. DevOps is a rotating task for me, including new code deployment, maintaining and updating production/QA servers' environment
- The duty job for me also includes sometimes helping researchers implement analyzing and filtering dangerous DNS/IP address, mainly using SVM(TensorFlow, Gaussian Kernel for SVM).

Visztek Co.Ltd *Shenzhen, China*

Image Processing Engineer *Jul. 2015 - Sep. 2016*

- `http://www.visztek.com/en/index.html`
- Visztek Co.Ltd is one of leading companies which specializes in the development, production and sales of CAD/CAM software and equipment for the PCB industry.
- As an Image Processing Engineer, my duty job was mainly to analyze the scan of PCB and improve the existing algorithm for segmentation of PCB, detection of circuite on PCB(Based on OpenCV(C++).
- Besides researching job, I would also work on maintain and devlop production code(java/SDK).

Huawei *Shenzhen, China*

Image Processing Engineer Intern *Jan. 2015 - Jun. 2015*

- `http://www.huawei.com/en/`
- Full-time Internship in Cloud Solution Department, Huawei
- Working on Image Recognition Group. My daily work is to develop algorithms on Image Recognition, based on OpenCV(C++) and Machine Learning.

Honors & Awards

2015	**Finalist**, The Award for Lanzhou University's Best Bachelor's Theses.(Top 10 in 300 theses)	*Lanzhou, China*
2014	**Award**, The scholarship for Innovation and Entrepreneurship. (CNY 1,200)	*Lanzhou, China*
2012	**Award**, Undergraduate Yearly Academic Scholarship(CNY 1,000)	*Lanzhou, China*
2011	**Finalist**, Theory based Class Program.(Top 18 in 150 students)	*Lanzhou, China*
2011	**Top 50**, Mathematics Subjects in University Entry Examination(Totally 0.4 million participants)	*Hubei, China*

Tech Stack

Operation System, Linux(Debian/Ubuntu), MacOs
Container/Virtualization, VitrualBox/Vagrant, Docker
DataBase, PostgreSQL, SQLAlchemy
Back-end, Python(flask/django), Rust, Go, Elasticsearch
Front-end, HTML5, Boostrap, jQuery, Ajax
Data Science, TensorFlow/Keras, Scikit-Learn, Numpy, Pandas
DevOps, SHELL(bash/zsh), Linux Kernel Developing(C)
Image Processing, OpenCV(python/c++)
Server Technology, Ngnix
Cloud Service, AWS(S3)
Version Control, Git(GitHub, GitLab)
Personal Fun, Unity, CUDA, Lisp

Language

Chinese, Native Language
English, Fluent in writing and speaking, **IELTS(Overall:6.5, R:8, S:5.5, L:6.0, W:5.5)**