Shicheng Chen

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https://shichengchen.github.io/

JOB

Nanyang Technological University
Project Officer in School of Computer Science and Engineering
2017-now

EDUCATION

TIANJIN UNIVERSITY
BS IN SOFTWARE ENGINEERING
2013-2017
GPA: 3.19 / 4.0

PUBLIC LESSONS

Stanford cs231n Convolutional Neural Networks for Visual Recognition(finish all videos and homework)

Stanford cs229 Machine Learning (finish all videos and homework)

Harvard cs109 Data Science(finish most videos and homework)

SKILLS

PROGRAMMING

Over 30000 lines:
C • C++
Over 1000 lines:
Python •Java • C#
Familiar:
Pandas• scikit-learn • NumPy
MXNet
OpenCV
STL

RESEARCH INSTERESTS

Machine Learning
Deep Learning
Computer Vision

AWARDS AND PUBLICATION

2014 Bronze Medal The ACM-ICPC Asia Regional Contest Shanghai Site
2015 top 250/7764 The Beauty of Programming, Hosted by Microsoft
2015 top 415/7084 Astar Contest, Hosted by Baidu
2017 top 14/614 Dog Breed Identification Kaggle Playground(IN PROGRESS)

Predicting Tongue Motion in Unlabeled Ultrasound Video Using 3D Convolutional Neural Networks
Shicheng Chen, Yifeng Zheng, Chengrui Wu, Guorui Sheng, Pierre Roussel, Bruce Denby
presentation in a **lecture(oral)** session at the ICASSP 2018

Direct, Near Real Time Animation of a 3D Tongue Model Using Non-Invasive Ultrasound Images
Chengrui Wu, Shicheng Chen, Guorui Sheng, Pierre Roussel, Bruce Denby
presentation in a **poster** session at the ICASSP 2018.

INTERNSHIP

Tianjin Institute of Software Engineering

Gomoku Artificial Intelligence

- Minimax algorithm
- Alpha-beta pruning
- Heuristic evaluation function: how good it would be for a player to reach that position
- By using ordering heuristics to search parts of the tree that are likely to force alpha-beta cutoffs early without sacrificing accuracy
- Narrowing search window base on experience

Challenge: design evaluation function and ordering heuristics

RESEARCH EXPERIENCE

The ACM International Collegiate Programming Contest

- Proficiency in using Graph and Tree search algorithms, such as Frenwick Tree, Segment Tree, KMP, Trie, Bellman-Ford algorithm, Dijkstra algorithm, strongly connected components algorithm, lowest common ancestors algorithm.
- Proficiency in using dynamic programming algorithm.

Challenge: create mathematical models for real-world problems

Direct, Near Real Time Animation of a 3D Tongue Model Using Non-Invasive Ultrasound Images

https://www.youtube.com/watch?v=syoq8PYXLdE&t=1s

- implement Snake algorithm to extract the sagittal contour from ultrasound images and Select five points from contour
- Use these five points to move a 3D tongue model
- Extract contour or some other information from model
- Use the information from the 3D tongue model to tune the snake algorithm

Challenge: use dynamic programming to implement the Snake algorithm for ultrasound images.

Predicting Tongue Motion in Unlabeled Ultrasound Video Using 3D Convolutional Neural Networks

- Implement the convolutional neural network to extract the contour from the ultrasound images(semantic segmentation) only by Python and Numpy instead of Deep Learning Libraries.
- Implement the vectorized convolution layer, deconvolution layer, max pooling, up pooling, average pooling, batch normalization, RELU.
- Use the convolutional neural network for several continuous frames to predict an upcoming tongue images. Make use of both spatial and spatial information.

Challenge: full vectorized implementation for convolution, pooling, batch normalization layer.