

Shicheng Chen

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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 5000 lines:

Python • Java • C#

Familiar:

Pandas • scikit-learn • NumPy

MXNet

OpenCV

STL

RESEARCH

INTERESTS

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

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

Shicheng Chen, Yifeng Zheng, Chengrui Wu, Guorui Sheng, Pierre Roussel, Bruce Denby

presentation in a **lecture(oral)** session at the ICASSP 2018

Predicting Tongue Motion in Unlabeled Ultrasound Video Using 3D

Convolutional Neural Networks

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=syq8PYXLdE&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

- Use the convolutional neural network for several continuous frames to predict an upcoming tongue images. Make use of both spatial and spatial information.
- 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.

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