Xupeng **Chen**

Electrical Engineering · New York University

xc1490@nyu.edu | www.cmwonderland.com | james20141606

Education

School of Life Science, Tsinghua University *Beijing, China*

BSc in Life Science *Sept. 2014 - June. 2019*

- XueTang program, cultivating top students to become leading researchers in science

Tandon School of Engineering, New York University *Brooklyn, New York*

Ph.D. Student in Electrical Engineering *Sept. 2019 -*

- Video Lab, Supervisor: Prof. Yao Wang

Publications

2020 **Stimulus Speech Decoding From Human Cortex With Generative Adversarial Network Transfer Learning**, Ran Wang, Xupeng Chen, Amirhossein Khalilian-Gourtani, Adeen Flinker, Yao Wang, IEEE International Symposium on Biomedical Imaging (ISBI 2020), Best Paper Finalist *Published*

2020 **Two-Stream Active Query Suggestion for Large-Scale Object Detection in Connectomics**, Zudi Lin, Donglai Wei, Won-Dong Jang, Siyan Zhou, Xupeng Chen, Jeff Lichtman, Hanspeter Pfister, 16th European Conference on Computer Vision (ECCV 2020) *Published*

Research Experience

Speech Decoding from Human Cortex using ECoG signal with Differetiable Vocoder *Video Lab, New York University*

Supervisor: **Yao Wang** *2019-*

- Use differentiable harmonic speech synthesizer for speech auto-encoding
- Use differentiable formant synthesizer for speech auto-encoding and use speech encoded acoustic feature to guide intelligible ECoG to speech decoding
- Improve ECoG to audio encoder using vision transformer with spatial-temporal attention and multi-patient training.

exSEEK: Robust exRNA Analysis Tool for Noninvasive Biomarker *Lu Lab, Tsinghua University*

Supervisor: **Zhi Lu** *2017-2018*

- Developed a complete pipeline for exRNA analysis. Included mapping, counts, matrix processing, robust feature selection and evaluation
- Used statistical and machine learning model for imputation, normalization, batch removal and feature selection
- Packaged all functions into software. Validated on published and lab dataset

eMaize: Machine learning method for quantitative traits prediction *Lu Lab, Tsinghua University*

Supervisor: **Zhi Lu** *2017-2018*

- Developed a new linear mixed model to predict traits of 36,000 hybrid samples using SNP data to find heterosis in maize
- Developed a non-parameter model to solve small sample training problems

Efficient Instance Annotation for Connectomics *Visual Computing Group, Harvard University*

SUPERVISOR: **HANSPETER PFISTER** *2018 Summer*

- Constructed a powerful 3D U-net for synapse detection in CREMI dataset. Ranked 1^{st} place in CREMI contest
- Constructed 3D U-net and 3D-CNN for synaptic connections between neurons, and intracellular structures like mitochondria. Construct an active-learning annotation framework for proofreading
- Applied models to predict JWR dataset with 1 million synapses. Submitted a paper to conference on Computer Vision and Pattern Recognition (CVPR)

Reconstruction of neural muscular junction connectomic EM data *Lichtman Lab, Harvard University*

SUPERVISOR: **JEFF LICHTMAN** *2018 Summer*

- Used 3D U-net and matching algorithm for neuron membrane prediction and tracing
- 3D reconstruction of 13 neural muscular juntions between neurons and muscles (largest ever)
- Quantified the linear correlation of axonal diameter and synaptic area by statistical analysis

Internship Experience

Developing efficient and high performance radar detection network *NXP® Semiconductors, San Jose*

JOB: **AUTONOMY & AUTONOMOUS DRIVING (ADAS) INTERN** *2021 Summer*

- Automotive Radar CFAR Detection using Convolutional Neural Networks
- CNN based Automotive Radar Target Detection and Classification
- Grad-CAM based Model Visualizing and Structural Pruning

Activities&Awards

2018	**Teaching Assistant in Bioinformatics Basic Course,** Wrote three chapters of teaching gitbook	*University*
2015-2018	**Scholarship,** XueTang scholarship	*University*
2017	**Second prize,** The First National College Students' Brain Computation and Application Competition	*International*
2017	**First Prize,** eMaize Challenge: Machine learning in breeding	*National*
2018	**Meritorious Winner,** Mathematical Contest in Modeling (MCM)	*International*
2016-2018	**Xuetang Research Funding,** $10,000 for Research in Lu lab	*University*
2016-2018	**Initiative Scientific Research Program,** $8,000 for Research in Biomedical Image analysis	*University*
2015	**Golden Prize,** Social practice award for investigation on e-cycling	*University*

Skills

- Proficient in Python, MATLAB, R, Bash, LaTeX
- Familiar with Machine Learning, Deep Learning (Tensorflow, Keras, Pytorch) and Computer Vision tools.
- Familiar with Linux, MacOS, Windows