QIMIN CHEN

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EDUCATION

M.S. in Computational Science, Mathematics and Engineering, UC San Diego   *09/2018 - 03/2020*
B.S. in Computer Science and Technology, Fuzhou University   *09/2014 - 06/2018*

PUBLICATION

- **Qimin Chen**, Vincent Nguyen, Feng Han, Raimondas Kiveris, and Zhuowen Tu. Topology-Aware Single-Image 3D Shape Reconstruction. *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2020. [L3DGM] [PDF] [POSTER]

RESEARCH EXPERIENCE

CoralNet Beta: Deploy Deep Neural Networks for Coral Reef Analysis   *12/2018 - Present*
Funded by National Oceanic and Atmospheric Administration (NOAA)   *Computer Science, UC San Diego*
Instructed by David Kriegman

- Developed core deep learning codebase for VGG, ResNet and EfficientNet efficient training and testing pipelines in Pytorch.
- Improved the new CoralNet training/testing by developing data analyzing pipelines that include data cleaning and data augmentation on 304 coral reef training sources.
- Worked on CoralNet (coralnet.ucsd.edu) deep learning backend development that include developing new feature extractor interface, integrating feature extraction and implementing unit tests.
- Improved the classification performance of the CoralNet backend classifiers over 7% on 26 coral reef testing sources.

Topology-Aware Single-Image 3D Shape Reconstruction   *06/2019 - 11/2019*
Instructed by Zhuowen Tu   *Cognitive Science, UC San Diego*

- Made attempts to address topology awareness, genus and connectivity, for 3D shape reconstruction by proposing topology-aware shape auto-encoder, TPWCoder, that learns to approximate 3D topological functions as well as to reconstruct 3D shapes.
- Studied variants of TPWCoder on the challenging ABC dataset, shows that decoder architecture and fine-tuning stage are both needed to produce better reconstruction results.
- Built TPWCoder upon MarrNet, demonstrate a noticeable qualitative improvement, about 2.9%, 1.6% and 1.8% improvement in IoU, CD and EMD respectively over the competing methods, MarrNet and ShapeHD, on the ABC dataset, also show improved qualitative and quantitative result on the ShapeNet and qualitative improvement on the Pascal 3D+ dataset.

Detecting Line Segments as Objects   *06/2019 - 11/2019*
Instructed by Zhuowen Tu   *Cognitive Science, UC San Diego*

- Cast the line segment detection problem into an object detection task as formulating line segments as objects, which reduce the algorithmic complexity comparing with the existing approaches.
- Proposed three options, Vanilla Box Diagonals, End-Point Shifts and Center Shift, Rotate and Scale, to formulate line objects to be trained in an end-to-end Faster R-CNN.

WORK EXPERIENCE

- **Center for Visual Computing Lab**   *06/2019 - Present*
  Computer Vision Research Assistant, Instructed by David Kriegman [PAGE]   *Computer Science, UC San Diego*
- **Machine Learning, Perception and Cognition Lab**   *06/2019 - 04/2020*
  Computer Vision Research Assistant, Instructed by Zhuowen Tu [PAGE]   *Cognitive Science, UC San Diego*
- **CSE 152: Introduction to Computer Vision**   *03/2019 - 06/2019*
  Course Tutor, Instructed by David Kriegman   *Computer Science, UC San Diego*

PROJECT

Face Aging with Generative Adversarial Network   *01/2019 - 03/2019*

- Implemented StarGAN and cDCGAN specifically for Face Aging task.
- Proposed an architecture, AE-cDCGAN, by integrating an auto-encoder with cDCGAN to help generate clearer aging face images.

SKILLS

OS and Languages: Linux, Python, Matlab, PHP, C/C++
Frameworks and Libraries: Pytorch, Keras, Tensorflow, Scikit-Learn, Matplotlib
Tools: Git, Kubernetes, Docker, Jupyter Notebook, Pycharm, AWS