Yongxu JIN

Email: jin.yongxu@outlook.com **Cell**: +(86)-150-2155-2215 **Website:** https://jinyx728.github.io

RESEARCH INTERESTS

Research Interests **Computer Graphics, Computer Vision, Machine Learning**

EDUCATION

Sept. 2015 - June 2019 **Shanghai Jiao Tong University**

(Expected) B.Eng. in **Software Engineering**

Overall GPA: **3.73/4.3 (3.63/4.0, 88/100)** Major GPA: **3.81/4.0, 90/100**

SKILLS

Languages Python, JAVA, C/C++, MATLAB, HTML, CSS, JavaScript, SQL, UML

Machine Learning Numpy, Sklearn, Caffe, Tensorflow, Keras

Graphics / Vision OpenGL, GLSL, Unity, ODE, OpenCV, Skimage

English Proficiency **TOEFL**: 104 (R29 L28 S23 W24) **GRE**: 328 (V158 Q170 AW 3.5)

RESEARCH EXPERIENCES

July 2018 - Sept. 2018 **Optimal Gait and Form for Animal Locomotion**

Advisor: Dr. Weiwei XU, State Key Lab of CAD&CG, Zhejiang University

- Studied numerical optimization and physical simulation, optimized gait and form for animal locomotion using a derivative-based inner loop (Sequential Quadratic Programming) and a sample-based outer loop (Covariance Matrix Adaptation)
- Derived the optimization function of the inner loop, computed its derivative by two methods (manual computation and automatic differentiation), and found its minimum value with SQP
- Used rigid body simulation library and numerical optimization library to implement the code

Skills Involved **C++, Rigidbody Simulation, SQP, Automatic Differentiation**

Sept. 2017 - June 2018 **Cartoon Image Dataset Collection and Classification using customized DNN**

Advisor: Dr. Xubo YANG, Digital ART Lab, Shanghai Jiao Tong University

- Obtained the basal dataset of the cartoon images from the web crawler and expanded the dataset (from 4000 to 10000+) with three methods:
  - Wrote NPR shader on the 3D models online and obtained the snapshots from various angles
  - Used a special algorithm to give cartoons the texture of pencils or crayons and collected image data in different styles
  - Converted the 2D image to 3D via MagicToon (AR application) and collected all snapshots
- Proposed a targeted DNN architecture to improve cartoon image recognition (10% error reduction):
  - Inputs Unified Stylization(IUS)-- unified styles of the input images to reduce the complexity of training
  - Feature Inserted Network(FIN)-- inserted special features of images into neural networks to improve accuracy
  - Network Plus Network(NPN)-- used multiple neural networks for concurrent training

Skills Involved **Python/MATLAB, MagicToon, Unity Shader, OpenCV, Tensorflow**

Mar. 2017 – Mar. 2018 **Simultaneous Visual Recovery of 3D Human Pose and Shape: Technique and Applications**

Group Leader *Advisor: Dr. Xu ZHAO, VisionLab, Shanghai Jiao Tong University*

- Systematically studied mechanism of Openpose and SMPLify, took charge of the overall task arrangement, and conducted open source code writing and testing
- Extracted a 2D human pose skeleton from an image, and fit a 3D human model with shape and pose on the 2D skeleton
- Automatically measured the height and BWH of a person from an image, based on a plotting scale in the image

Skills Involved **Python/C++, Openpose, SMPLify, Caffe**

Sept. 2017 – Nov. 2017 **Morphological Classification of Amazon Rainforest via Satellite Data**

Advisor: Dr. Mike TAMIR, School of Information, UC Berkeley

- Conducted data pre-processing, including haze removal, data augmentation, etc.
- Implemented data set extension, image contrast optimization and dimensionality reduction
- Compared the classification outcomes processed by Shallow Neural Network and VGG-16 Network, and chose VGG-16 Network as the main classification method
- Improved the VGG-16 Network details and achieved the F2 score of 0.90254 (World Highest 0.93317)

Skills Involved **Python, PCA, Deep Neural Network, OpenCV, Keras**

Aug. 2017 **Text Data Mining and Analysis of Enron Corporation Emails**

Advisor: Dr. Ning LI, Institute of Computing Technology, Chinese Academy of Sciences

- Managed the email preliminary analysis, XML Data parse, title/ body abstraction
- Conducted the word splitting, lexical reduction of email title/body parts and converted all participles to TF-IDF vectors, and realized vector clustering via LDA and K-means
- Plotted the relationship networks of senders and recipients via Gephi based on the email contents and clustering results

Skills Involved **Python/JAVA, TF-IDF, LDA, K-means, NLTK, Sklearn, Gephi**

PUBLICATIONS

Sept. 2018 Zhou, Yanqing; **Jin, Yongxu**; Luo, Anqi; Chan, Szeyu; Xiao, Xiangyun; Yang, Xubo. **ToonNet: A cartoon image dataset and a DNN-based semantic classification system**, *ACM SIGGRAPH International Conference on Virtual-Reality Continuum and its Applications in Industry (VRCAI 2018)*

INTERNSHIPS

Dec. 2017 – Feb. 2018 **Shanghai Cloudpense Co., Ltd.**

Computer Vision Engineer Intern, R&D Department

- Took charge of the invoice picture processing and OCR recognition, and converted images of the invoices into editable texts

Skills Involved **JAVA, OpenCV, OCR**

HONORS AND AWARDS

- *Oct. 2017* **National Second Prize** for National College Students Software Innovation Contest
- *Oct. 2017* Huawei Scholarship (**Top 5**)
- *Sept. 2017* Scholarship for Academic Excellence-**Class B**
- *July 2017* **4th Place** of HackXSJTU NVIDIA Intelligence Car Innovations
- *Mar. 2017* Outstanding Students Award, SJTU