Yongxu JIN

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RESEARCH INTERESTS

Computer Graphics, Computer Vision, Machine Learning

EDUCATION

Shanghai Jiao Tong University *Sept. 2015 - June 2019 (Expected)*

Bachelor 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

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

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

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

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

Simultaneous Visual Recovery of 3D Human Pose and Shape *Mar. 2017 - Mar. 2018*

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

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

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

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

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

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

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

Computer Vision Engineer Intern, R&D Department

- Took charge of the invoice picture processing and OCR recognition with OpenCV and Baidu OCR framework.
- Conducted Gaussian blur, Canny edge detector, and contour finding to the original invoice picture, found the out bound of the invoice with convex hull algorithms, and repositioned the invoice using perspective transform.

Skills Involved: JAVA, OpenCV, OCR

HONORS AND AWARDS

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