Songyao Jiang

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EDUCATION HISTORY

09/2015 – present **NORTHEASTERN UNIVERSITY** **Boston, MA**
Ph.D. Candidate in Computer Engineering
- Research Topics: Generative Models, Adversarial Training, Computer Vision, Machine Learning.

09/2013 – 06/2015 **UNIVERSITY OF MICHIGAN** **Ann Arbor, MI**
Master of Electrical and Computer Engineering
- GPA: 3.76/4.0
- Coursework: Linear Algebra, Machine Learning, Image Processing, Database Management, Embedded System Programming, etc.

09/2009 - 06/2013 **HONG KONG POLYTECHNIC UNIVERSITY** **Hong Kong**
Electrical Engineering, Bachelor of Engineering
- GPA: 3.3/4.0 Major GPA: 3.7/4.0
- Coursework: Programming, Computer Architecture, Electrical Circuit etc.

WORK EXPERIENCE

01/2017 – 09/2017 **GIARAN, INC** **Boston, MA**
Research Engineer (early member of the startup company)
- Develop a color calibration system which could automatically compensate the color casted by environmental lights and retrieve the true color of the objects by controlling hardware and software written in OpenCV C++
- Develop a web-based app using JavaScript as front end and Spring Framework with Tomcat Java EE as backend which runs a C++ based image processing code using SWIG which ports C++ libraries to be used in Java.
- Acquired by Shiseido Americas in Nov. 2017.

05/2015 – 08/2015 **TGOOD LIMITED COMPANY** **Qingdao, China**
Grouped Smart Charging Control System for Electric Vehicles
- Develop a smart charging algorithm for massively grouped EV charging system, in order to mitigate the charging load on power system and improve the battery life. This charging algorithm automatically recognizes EVs and arranges their charging on demand as well as providing specialized charging profiles for connected EVs.

RECENT RESEARCH PROJECTS

05/2018 – present **NORTHEASTERN UNIVERSITY** **Boston, MA**
Video-based Multi-person 2D Pose Estimation with Tracking
- The target of this research project is to improve the accuracy of pose estimation and tracking by utilizing the temporal information of the human body movement between adjacent video frames. We develop a novel method of extracting movement of human body using deep CNN and use this to refine the pose estimation results. We also develop a video-based parts association algorithm for pose tracking.

03/2018 – 05/2018 **NORTHEASTERN UNIVERSITY** **Boston, MA**
Spatially Controllable Conditional Image Generation
- Develop a facial attribute translation system using a novel framework based on generative adversarial networks. The system can modify the facial attributes according to the user input including but not limited to age, gender, facial expression and hair color. Due to guidance of facial segmentation, this method is superior in realistic results and image quality.

12/2017 – 02/2018 **NORTHEASTERN UNIVERSITY** **Boston, MA**
Facial Attribute Translation using Adversarial Networks
- Develop a facial attribute translation system using a novel framework based on generative adversarial networks. The system can modify the facial attributes according to the user input including but not limited to age, gender, facial expression and hair color. Due to guidance of facial segmentation, this method is superior in realistic results and image quality.

02/2016 – 05/2016 **NORTHEASTERN UNIVERSITY** **Boston, MA**
Digital Facial Make-up Add-on System
- This makeup add-on system could read a face image with a recommended make-up style and then automatically apply the corresponding make-up attributes such as foundation, eyeshadow, eyeliner, eyebrow, lipstick color on the image according to the facial landmarks detected. The system has many built-in makeup styles and colors which are learned from professional cosmetic tutorials.

02/2016 – 04/2016 **NORTHEASTERN UNIVERSITY** **Boston, MA**
Facial Attributes Classification System
- The classification system aims to classify the facial attributes such as skin color, face shape, eye shape into their classes. It extracts features from face image and trains them using multi-class SVM. The results of classes of facial attributes are used to recommend a make-up style for the user.

12/2015 – 03/2016 **NORTHEASTERN UNIVERSITY** **Boston, MA**
A Machine-Learning Approach of Snow Detection for PV Power Prediction
- Detect the snow effects on PV power output during winter when PV panels experience snowfalls, a machine learning approach which converts the snow detection problem into a classification problem is created. The overall accuracy of PV power prediction is significantly improved.

RESEARCH INTERESTS

Pose Estimation, Image Generation, Style Transfer, Adversarial Training, Generative Models.

PUBLICATIONS

- **Jiang, S.,** Liu, H., Wu, Y., & Fu, Y. (2018). Spatially Constrained Generative Adversarial Networks for Conditional Image Generation. *Submitted to a Springer Journal. Under Review*.
- **Jiang, S.,** Tao, Z., & Fu, Y. (2018). Segmentation Guided Image-to-Image Translation with Adversarial Networks. *Submitted to an IEEE Conference. Under Review*.
- Alashkar, T., **Jiang, S.,** & Fu, Y. (2017, May). Rule-Based Facial Makeup Recommendation System. In *Automatic Face & Gesture Recognition (FG 2017), 2017 12th IEEE International Conference* on (pp. 325-330). IEEE.
- Alashkar, T., **Jiang, S.,** Wang, S., & Fu, Y. (2017, February). Examples-Rules Guided Deep Neural Network for Makeup Recommendation*. In AAAI* (pp. 941-947).

HONORS & AWARDS

2009-2013 **HONG KONG POLYTECHIC UNIVERSITY** **Hong Kong**
Outstanding Scholarship for Non-local Students
- Four times, one for each academic years

COMPUTER SKILLS

PyTorch, TensorFlow, OpenCV, Python, C/C++, Caffe, MATLAB, Java, JavaScript, Database Management