朱飞达

主页：https://zhufeida.github.io
+65-81207563
zhufeida@connect.hku.hk

教育经历

香港大学   香港
计算机科学系博士，师从俞益洲教授   *2014 年 9 月-2018 年 10 月*
- 研究领域: 计算机视觉，图像处理，机器学习
- 2017年计算机系最佳教学助理 (课程 COMP8503)

中国科学技术大学   中国合肥
自动化系学士   *2010 年 9 月-2014 年 7 月*
GPA: 3.76 / 4.3   Rank: 7 / 85
- 校优秀毕业生（2014）
- 校优秀团干部（2013）
- 计算机与信息科技英才班 (2010-2014)

论文

1. Feida Zhu, Zhicheng Yan, Jiajun Bu, and Yizhou Yu. "Exemplar-Based Image and Video Stylization Using Fully Convolutional Semantic Features." IEEE Transactions on Image Processing 26, no. 7 (2017): 3542-3555.
2. Feida Zhu, and Yizhou Yu. "Image and Video Stylization Using Fully Convolutional Network". https://arxiv.org/pdf/1811.10872.pdf.
3. Feida Zhu, Zetong Liang, Xixi Jia, Lei Zhang and Yizhou Yu. "A benchmark for Edge-Preserving Image Smoothing". IEEE Transactions on Image Processing 28, no. 7 (2019): 3556-3570.
4. Feida Zhu, Hongji Cao, Zunlei Feng, Yongqiang Zhang, Wenbin Luo, Hucheng Zhou, Mingli Song, and Kai-Kuang Ma. "Semi-supervised Eye Makeup Transfer by Swapping Learned Representation", Accepted by 2019 ICCV Workshop on Learning for Computational Imaging.
5. Feida Zhu, Kai-kuang Ma, "Pyramid Non-Local Networks", under review
6. Feida Zhu, Zunlei Feng, Mingli Song, Kai-Kuang Ma, "Semi-supervised Style Transfer with Controllable Representations", under review

工作经历

南洋理工大学   新加坡
博士后研究员   *2019 年 2 月 – 至今*
- 针对 CNN 卷积核的局部性，研究并提出多尺度的非局部网络结构，从而捕捉远距离位置间的相关性，在去噪、超分辨、图像光滑等问题上都取得显著进步。
- 在与瑞典 Linköping 大学合作的自动驾驶项目中，在 CARLA 模拟器基础上，负责街道语义分割。

阿里巴巴   中国杭州
实习生   *2018 年 8 月 - 2019 年 1 月*
- 研究自动化妆迁移，将明星脸上的妆容自动迁移到用户脸上，应用于天猫魔镜。
  - 使用人脸检测自动爬取天猫上化妆数据，并用 OpenCV 进一步处理数据。
  - 在 Tensorflow 框架中训练人脸关键点检测模型和半监督妆容迁移模型。
  - 成果发表在 2019 ICCV workshop。

香港大学商学院   香港
研究助理   *2017 年 7 月 - 2017 年 8 月*

- 帮助 Ryan 教授，根据经济模型，对何时聘用或解聘员工问题建立常微分方程，使用 MATLAB 求数值解。

微软亚洲研究院   中国北京
实习生   *2013 年 7 月 – 2013 年 9 月*
- 主要用了边缘检测、方向检测技术，对以前采用隔行扫描拍摄的体育视频进行插值。
  - 先在 MATLAB 中快速迭代，测试算法有效性。
  - 为了合规和效率，完整算法用 C++ 复现。

研究经历

声音驱动生成嘴部动作   *2018年1月 - 2018年6月*
仅通过语音就能生成人物的嘴部动作，我们提取语音的 MFCC 特征作为输入，嘴部的关键点位置作为输出，训练了带时间延迟的双层 LSTM 网络。
- 训练数据来源于公开的奥巴马演讲视频，相比于编码解码结构的模型，我们训练的 LSTM 网络将嘴部关键点位置的误差从0.05降到了0.01。

边界保持的图像平滑   *2017年6月 - 2018年10月*
为了公平的定量分析和进一步提升图像平滑领域的进展，我们与香港理工大学的张磊教授团队合作，提出了一个 Benchmark，提供定量分析指标，以及基于深度学习的两个基线模型。
- 在 Visual Studio 中用 Qt 开发了用户交互界面来让用户选取最优图像平滑结果。
- 我们的基线模型包括深层次的卷积网络和基于残差模块的卷积网络。
- 论文发表在 TIP 2019。

自动增删图像纹理   *2017 年 3 月 - 2017 年 5 月*
访问微软-浙大视觉感知实验室（VIPA），师从宋明黎教授。利用循环误差和 GAN，在无监督条件下，训练模型使普通图片带有布料纹理的效果。

图像和视频风格化   *2015 年 3 月 - 2017 年 3 月*
我们基于图像超像素，在有监督样本的条件下，为图像和视频风格化提供了一种新颖的深度学习架构，可以在不同局部采用不同风格样式。
- 我们在 Caffe 中训练了语义分割模型，并用深度神经网络来预测颜色变换系数。
- 特征工程使用了语义特征，颜色直方图等等。
- 论文发表在 TIP 2017

全国大学生科技创新项目   *2012 年 9 月 - 2014 年 5 月*
我们使用 Microsoft Kinect 来捕捉用户的手臂动作，并将相应的控制信号发送到机器人手臂，让机器人手臂模仿用户的手臂动作。
- 获得 2014 年全国大学生科技创新优秀奖。

第 12 届 RoboGame 竞赛   *2012 年 6 月 – 2012 年 9 月*
我们团队设计了履带小车，利用 OpenCV 识别路标和单片机通信，自动沿着路径完成送花任务。同时作为自动化系队长，负责组织各个队伍。

附加信息

编程语言: Python, Matlab, C++, Linux Shell
技能: 机器学习，深度学习，计算机视觉，数据分析
工具: MatConvNet, Caffe, Tensorflow, PyTorch, Scikit-learn, OpenCV
语言： 英语（熟练）

Feida Zhu

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EDUCATION

The University of Hong Kong   **Hong Kong**
PhD in Computer Science, Supervised by Prof. Yizhou Yu   *Sept.2014 - Oct. 2018*
- Research Interest: Deep learning, Computer Vision, Image Processing
- Best Tutor Award (TA of COMP8503), 2017

University of Science and Technology of China   **Hefei, China**
B.Eng. in Automation   *Sept. 2010 - Jul. 2014*
GPA: 3.76 / 4.3   Rank: 7 / 85
- Outstanding Graduate of University of Science and Technology of China
- School Outstanding Secretary of the Communist Youth League Branch
- The Elite Program at School of Information Science and Technology. (2010-2014)
- National Endeavor Scholarship (Top 5%), 2013
- National Endeavor Scholarship (Top 5%), 2012
- Outstanding Student Scholarship Award (Top 20%), 2011

PUBLICATION

1. Feida Zhu, Zhicheng Yan, Jiajun Bu, and Yizhou Yu. "Exemplar-Based Image and Video Stylization Using Fully Convolutional Semantic Features." IEEE Transactions on Image Processing 26, no. 7 (2017): 3542-3555.
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WORK EXPERIENCE

Nanyang Technological University   **Singapore**
Research Fellow   *Feb. 2019 - Now*
- Research about blurriness-guided image enhancement, blurriness detection related problems.
  - Propose non-local pyramid networks to capture possible long-range dependences, which is the limitation of convolutional kernels.
- Responsible for semantic segmentation model in the WASP-NTU co-project to parse the street scenes for auto-driven car.

Alibaba Group   **Hangzhou, China**
Algorithm Engineer Intern   *Aug. 2018 - Jan.2019*
- Learn agile development, everyday contact, collaboration with business team.
  - Train the 170-point model with state-of-the-art facial landmark detection algorithm
  - Present a novel semi-supervised dual stage model to transfer makeup with both labeled data and unlabeled data.

The University of Hong Kong   **Hong Kong**

Research Assistant   *July. 2017 - Aug. 2017*

- Help Prof. Ryan model an engage or dismiss employee problem and solve the constructed ODE to determine when to engage or dismiss employees. We calculate the numerical solution with Matlab ODE module.

Microsoft Research Asia   **Beijing, China**
Intern at Multimedia Group   *Jul. 2013 –Sept.2013*

- Participated in a project called de-interlacing videos. The project aims to interpolate the missing pixels according to the existing pixels.
  - We test new ideas in Matlab for fast implementation.
  - The sophisticated solution is re-implemented with C++ in Visual Studio for efficiency and regulation purpose.

RESEARCH EXPERIENCE

Audio-driven Face Animation   *Jan. 2018 - June 2018*

We trained a time-delayed two-layer LSTM to predict the mouse shape based on the MFCC feature of audio

- The data is crawled from the Internet, further processed into audio feature and mouth shape landmarks. We utilize the encoder-decoder structure to predict mouth shape based on the input audio.

Edge Preserve Image Smoothing   *Jun. 2017 - Oct.2018*

We have presented a benchmark for edge-preserving image smoothing for the purpose of quantitative performance evaluation and further advancing the state of the art.

- Develop an interactive system for data collection with Qt in Visual Studio.
- Our deep models including Very Deep Convolution Neural Network(VDCNN) and Residual-based Network(ResNet) are implemented in Tensorflow with Python

Image Texture Addition and Removal   *Mar. 2017 - May 2017*

Visit Microsoft Visual Perception Laboratory (VIPA) of Zhejiang University, advised by Prof. Mingli Song. We cooperated on a project which aims to add texture on plain images or remove textures from images.

Automatic image and video stylization   *Mar. 2015 - Mar. 2017*

We have presented a novel deep learning architecture for exemplar-based image and video stylization, which learns local enhancement styles from image pairs

- We utilize the image classification and semantic segmentation techniques in Matcovnet and Caffe with Matlab language.
- We conduct the feature engineering including Principle Component Analysis, Normalization.

National College Students' Science and Technology Innovation Project   *Sept. 2012 - May 2014*

We use Microsoft Kinect to capture the user's arm motions and send corresponding control signals to a robot arm to let the robot arm mimic user's arm**.** We won the National College Students' Science and Technology Innovation Project Excellence Award, 2014

The 12th RoboGame Robot Contest   *Jun. 2012-- Sept. 2012*

Our team designed and made an apron wheel car, which can go up and down stairs and deliver flowers to the specified destination using the signs on the corner of the road

ADDITIONAL INFORMATION

Programming Language: Python, Matlab, C++, Linux Shell
Skills: Machine Learning, Deep Learning, Computer Vision, Data Analysis
Tools: MatConvNet, Caffe, Tensorflow, PyTorch, Scikit-learn, OpenCV

Language: English(fluent), Mandarin(native)