Juyong Jiang

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Education

- **Hohai University** **Nanjing, China**
  B.S in Computer Science and Technology *08/2016--07/2020*
  GPA 88.76/100, 4.67/5.0, ranking top 8/107 in major

Personal Profile

My research interest is Computer Vision, with a focus on **Object Detection**, **Instance Segmentation** and **Deep Learning**, supervised by Prof. **Jing Liu**. So far, I have *read more than 100* CVPR/ ICCV/ ECCV/ NIPS/ AAAI papers so that I can understand and re-implement the new papers. I used to be a member of Hohai Mathematical Modeling Lab and then joined Hohai AI Development Team, under the supervision of Prof. **Jianjun Ni**.

Publications

- **Juyong Jiang**, Jie Zhang and Kai Zhang. "Cascaded Semantic and Positional Self-Attention Network for Document Classification." In Proceedings of the Conference on Empirical Methods in Natural Language Processing (***EMNLP***), 2020. (Submit)
- Junfeng Chen, **Juyong Jiang**, et al. "A fault diagnosis system for rail transit platform doors based on deep learning." Chinese Patent. 201910613949.1 (Pending).
- Jianjun Ni, **Juyong Jiang**, et al. "Bank card number positioning and recognition end-to-end method based on CNN and RNN." Chinese Patent. 201910933476.3 (Pending).
- Junfeng Chen, **Juyong Jiang**, et al. "Multi-regional precipitation prediction model construction method based on multi-graph convolution and memory network." Chinese Patent. 201911362437.9 (Pending).

Projects

- **Video & Image Instance Segmentation Based on Deep Learning**. (***03/2020--Present***)
  - Predict both the location and the semantic mask of each instance in an image & video.
  - Add the module of ASPP, CoordConv, DCN, Global Pooling, Self-Attention, etc. on baseline framework to solve some problems and improve performance.
  - IVA, NLPR, CASIA & HuaWei.
- **Spatiotemporal Data Mining in Smart Cities Based on Deep Learning**. (***07/2019--08/2019***)
  - Encode the non-Euclidean pair-wise correlations among regions into multiple graphs and then explicitly model these correlations using multi-graph convolution.
  - Augments recurrent neural network with a contextual-aware gating mechanism to re-weights different historical observations.

- College of Computer Science and Technology, Zhejiang University.

- **Bank Card Recognition System Based on Deep Learning**. (***03/2019--07/2019***)

  - Data augmentation by using random cropping, rotation, various transformation, blur and noise.

  - Using CTPN & CRNN model to locate and recognize bank card number, respectively.

  - Developing a web page and an android app to display and use.

  - College of Internet of Things Engineering, Hohai University.

Experience

- **Image & Video Analysis Group (IVA), National Laboratory of Pattern Recognition (NLPR), Institute of Automation, Chinese Academic of Sciences (CASIA)** **Beijing, China**

  Research Intern *10/2019--Present*

  - Worked on **instance segmentation** in images & videos with Dr. Xinjian He, supervised by Prof. **Jing Liu**.

- **Department of Computer and Information Sciences, Temple University** **Philadelphia, US**

  Research Intern *08/2019--02/2020*

  - Worked on **natural language processing**, supervised by Prof. **Kai Zhang**.

- **Pervasive Computing Lab (PCLab), College of Computer Science and Technology Zhejiang University** **Hangzhou, China**

  Research Intern *07/2019--08/2019*

  - Worked on **spatiotemporal data mining** in smart cities based on deep learning, supervised by Prof. **Ling Chen**.

- **AI Development Team, College of Internet of Things Engineering, Hohai University** **Nanjing, China**

  Research Assistant *08/2018--07/2020*

  - Worked on **application development** based on deep learning, supervised by Prof. **Jianjun Ni**.

Awards and Honors

- Excellent Bachelor Thesis in Hohai University (**5%**) & Recommend as Outstanding Bachelor Thesis in Jiangsu Province (**only 2 papers** in Department of Information, Hohai University), 2020.
- Outstanding Student Honor in Hohai University, in years 2019 and 2020.
- Research and Innovation Excellent Scholarship in Hohai University, 2020.
- Spirtiual Excellent Scholarship in Hohai University, in years 2019 and 2020.
- **National Encouragement Scholarship**, 2018.
- Academic Excellent Scholarship in Hohai University, in years 2017, 2018, 2019 and 2020.
- Top 10 Outstanding students, College of Internet of Things Engineering, Hohai University, 2018.
- Advanced Individual of Students at Social Practices in Summer Vacation. (Serve as

Electronic Referee in The 19th Annual Games in Jiangsu Province), 2018.

- Second Prize & Second Prize for Certificate Authority Cup Mathematical Modeling Online Challenge (First & Second Stage, respectively), 2020.
- Honorable Mention for Mathematical Contest in Modeling (MCM), 2018.
- Honorable Mention for Certificate Authority Cup International Mathematical Contest in Modeling (CAMCM), 2017.
- Excellent Grades in Trash Classification Challenge Cup of Huawei Cloud Artificial Intelligence Contest, 2019.

Programming Skills

Language: C / C++ / Java / Python || **Framework** : Tensorflow / Pytorch || **OS** : Linux

江聚勇

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学校：河海大学 专业：计算机科学与技术
GPA: 88.76/100, 4.67/5.0 Rank: Top 8/107 in major

研究兴趣 Computer Vision / Object Detection / Instance Segmentation / Deep Learning

个人陈述 有着 **100 多篇** CVPR/ICCV/ECCV/NIPS/AAAI 顶会论文阅读经历，能理解、能评价、能快速复现前沿论文；本科毕业设计论文荣获河海大学优秀毕业论文(**5%**)、推荐江苏省优秀毕业论文(整个信息学部**仅 2 篇**)；以第一作者 submit 一篇自然语言处理领域四大顶会之一 2020 EMNLP 论文；拥有 **3 项**发明专利；参与 **2 项**科研项目；获得 **5 项**学科竞赛成果；获得 **8 项**奖学金等荣誉称号

编程能力

- 编程语言：C / C++ / Java / Python
- 开源框架：Tensorflow / Pytorch
- 操作系统：Linux

数学能力

- 河海大学 Mathematical Modeling Lab 成员
- 2018-02 美国大学生数学建模竞赛二等奖
- 2017-11 第六届数学中国数学建模国际赛二等奖
- 2020-4 第十三届“认证杯”数学中国建模网络挑战赛第一阶段二等奖
- 2020-5 第十三届“认证杯”数学中国建模网络挑战赛第二阶段二等奖
- 本科阶段所有数学类课程成绩优异（高数/线代/概率论/数值分析/离散数学/数学建模）

论文&专利

- **Juyong Jiang**, Jie Zhang and Kai Zhang. "Cascaded Semantic and Positional Self-Attention Network for Document Classification.”（EMNLP), 2020. (Submit)
- 一种基于深度学习的轨道交通站台门故障诊断系统（受理）2019.7
- 基于 CNN 和 RNN 的银行卡卡号定位与端到端识别方法（受理）2019.9
- 基于多图卷积和记忆网络的多区域降水量预测模型构建方法（受理）2019.12

科研项目

1 基于深度学习的银行卡识别系统 (*03/2019--07/2019*)

由于银行卡复杂花纹背景、凹凸和印刷字体及光照等条件的干扰，且当下识别技术需要对齐银行卡的四个边角，才能进行准确的识别。通过利用复杂场景文本检测和识别的开源算法，使得拍摄的场景和角度可以更加随意化，当下项目识别精度在 **95%以上。本人主要负责**：1、利用随机裁剪、旋转、对比度变换、Gamma 变换、椒盐变换、高斯噪声、高斯模糊等图像处理技术进行银行卡图片数据增强；2、利用 Label-

Image 软件进行银行卡号的位置标注；3、编写用于卡号定位的 CTPN 和用于端到端识别的 CRNN 神经网络程序；4、Android 、Web GUI 的部分设计和编写。(负责人)

2 基于深度学习的智慧城市时序时空数据挖掘 (*07/2019--08/2019*)

本人主要负责：利用时空多图卷积网络解决当下仅仅考虑不同区域间欧几里得对距离上的关系，而忽略了非欧几里得对的关系。例如：空间区域的周围 POI 分布的功能性影响，不同区域直连交通道路的影响等。在原来的 LSTM 时间序列模型之上结合非欧几里得对关系利用图卷积进行建模，可以大大提高网约车乘车需求量的预测。

3 基于深度学习的视频&图像实例分割 (*03/2020--至今*)

在实例分割任务中，所设计的模型需要同时定位出视频&图像中所感兴趣实例的位置边框以及语义掩码。**本人主要负责**：为解决大目标感受野不足导致的上下文语义缺失，掩码边缘粗糙等问题，在所设计的基准模型中引入 ASPP, CoordConv, DCN, Global Pooling, Self-Attention 等模块尝试解决，并提升模型性能。

科研经历

- **中国科学院自动化研究所, 模式识别国家重点实验室, 图像视频分析组 (IVA, NLPR, CASIA)**
  导师 **刘静** 教授
  Research Intern *10/2019~至今*
- **美国天普大学, 计算机与信息科学学院**
  导师 **张凯** 教授
  Research Intern *08/2019~02/2020*
- **浙江大学, 计算机科学与技术学院, 普适计算实验室 (PCLab)**
  导师 **陈岭** 教授
  Research Intern *07/2019~08/2019*
- **河海大学, 物联网工程学院, 人工智能开发团队**
  导师 **倪建军** 教授
  Research Assistant *08/2018~07/2020*

获奖荣誉

- 2020 河海大学优秀本科毕业论文 (**5%**), 推荐为江苏省优秀本科毕业论文 (整个河海大学信息学部**仅 2 篇**)
- 2019, 2020 河海大学“优秀学生”
- 2020 河海大学科技创新奖学金
- 2019, 2020 河海大学精神文明奖学金
- 2018 国家励志奖学金
- 2017, 2018, 2019, 2020 河海大学学业优秀奖学金
- 2018 河海大学大学生暑假社会实践活动"先进个人"
- 2018 河海大学物联网工程学院“十佳学生”
- 2019 华为云人工智能大赛“垃圾分类挑战杯”成绩优异