Junwen Chen

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Education

- **Rochester Institute of Technology** — **Sep 2018 – Present**
  Ph.D student in Computer Science — *Advisor: Yu Kong*
- **Southwest Jiaotong University** — **Sep 2015 – Jun 2018**
  M.S. in Electrical Engineering — *Advisor: Zhigang Liu*
  Rank: Top 5%
- **Southwest Jiaotong University** — **Sep 2011 – Jun 2015**
  B.S. in Electrical Engineering and Automation
  Rank: Top 5%

Publications

[1] **Junwen Chen**, Wentao Bao, Yu Kong. Group Activity Prediction with Sequential Relational Anticipation Model. *The European Conference on Computer Vision (ECCV)*, August 2020.

[2] **Junwen Chen**, Wentao Bao, Yu Kong. Activity-driven Weakly-Supervised Spatio-Temporal Grounding from Untrimmed Videos. *ACM Multimedia*, October 2020.

[3] **Junwen Chen**, Haiting Hao, Hanbin Hong, Yu Kong. RIT-18: A Novel Dataset for Compositional Group Activity Understanding. *CVPR Women in Computing Workshop*, June 2020.

[4] **Junwen Chen**, Zhigang Liu, Hongrui Wang, Alfredo Nunez, Zhiwei Han. Automatic Defect Detection of Fasteners on the Catenary Support Device Using Deep Convolutional Neural Network. *IEEE Transactions on Instrumentation and Measurement*, vol. 67, no. 2, Feb. 2018.

[5] Hongrui Wang, Alfredo Núñez, Rolf Dollevoet, Zhigang Liu, **Junwen Chen**. Intelligent condition monitoring of railway catenary systems: A Bayesian network approach. In Proc. 25th Int. Symp. Dyn. Vehicles Roads Tracks (IAVSD), Dec. 2017.

Research Experience

- **ACTION Lab, Rochester Institute of Technology** — **Sep 2018 – Present**
  Research Assistant — *Advisor: Yu Kong*

  Activity Anticipation of Multiple People
  - Proposed a sequential relational anticipation framework to predict the activity of a conceptual group of people when only the beginning frames of the activity are observed.
  - Marginally outperformed the best existing action prediction methods and also explicitly predicted the trajectories of multiple people in the unseen frames of the activity as a by-product.
  - Established a new dataset for compositional group activity recognition and long-duration anticipation.

  Weakly Supervised Video Object Grounding
  - Proposed a video object grounding framework using the off-the-shelf video captions but without extensively finely-annotated object tracklets, which greatly decreases the labeling cost for real-world applications.
  - Built a spatio-temporal context encoding model to capture the temporal patterns of object interactions, a good way to ground objects driven by activity information in captions, which boosted state-of-the-art

methods by 2%.

- **Baidu Inc., Beijing** **Apr 2018 – Jul 2018**
  Research Intern *Mentor: Chengquan Zhang*
  Multi-scale scene text detection and model compressions.
  Transfer the tiny face detection idea to scene text system where character sizes are extremely diverse and the image is also arbitrary in size. Optimize the detection range of pyramid detection structures and the model size to reduce the GPU consuming.

- **Horizon Robotics, Beijing** **Jul 2017 – Nov 2017**
  R&D Intern *Mentor: Weiqiang Ren*
  Deep learning for 3D object detection in autonomous driving.
  Estimate 3D locations of vehicles, respectively based on monocular images and multi-sensor fusion of LiDAR and RGB images. Achieved promising results on both the KITTI benchmark and the road data captured in Beijing.

- **NEEC, Southwest Jiaotong University** **Mar 2015 – Jun 2018**
  Master Student *Advisor: Zhigang Liu*
  Vision-based Surface Defect Detection of High-speed Railway Power Supply Device.
  - Explored the perception algorithms to predict the health condition of the extracted components including the cracks, missing or falling of the fasteners, stains, etc.
  - Established a dataset of railway power supply device images collected on 100 km railway line.

Tech Stack

Python: Four-year programming experience, familiar with deep learning framework PyTorch and TensorFlow.
C++: Experienced in deep learning framework Caffe and used it in several computer vision projects.
Matlab: Experienced in image processing packages.

Awards and Activities

Travel Grant: AAAI 2020, CVPR Women in Computing Workshop 2020
Scholarship: National Scholarship of China in 2016. SWJTU Undergraduate Innovation Award in 2015
Mathematics Modeling: First Prize in National Undergraduate Mathematics Modeling Contest in 2013. Second Prize in National Graduate Mathematics Modeling Contest in 2015
Misc: Excellent Graduate Thesis in 2018

Presentations

Showcase: RIT Graduate Education Week Showcase, Poster Session, 2018

Academic Service

Conference Reviewer: ACM Multimedia 2019-2020
Journal Reviewer: IEEE Trans. on Instrum. and Meas., IEEE Trans. on Intelligent Transportation System
Student Volunteer: AAAI 2020, CCC 2016