Final Project Presentation Guidelines

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CS231A
03/16/2018

Logistics

- Time:
    - 03/19/2018, 12:30 pm - 2:30 pm
- Place:
    - Room 1: Oshman 125, Sign up sheet
    - Room 2: 450 Serra Mall, 300-300, Sign up sheet
- Format:
    - 3.5 minutes (3 minutes talk + 0.5 minute QA)
- Submission:
    - The deadline to change your slides or send your taped videos for SCPD students is 03/18/2018 at 5:00 pm.
    - The deadline of the final report is 03/22/2018 at 11:59pm.

Grading

Project Proposal: 1%

Project Milestone: 5%

Final Project Report: 25%

Final Project Presentation: 7%

Caveats

- Please submit your slides on time. We will disable the editing by the deadline.
- Please do not change the order of or modify the slides of any other group.
- Only SCPD students are allowed to tape the video unless explicitly approved by the head TA.

Presentation Contents

- Problem Definition and Motivation
  - What is the problem you are trying to solve? How is it related to the course material? What is your goal? What is the challenges in this problem?
- Previous Works (Optional)
  - How do previous people solve this problem? What are their limitations?
- Technical Details
  - Highlight your main technical contributions. 3 minutes is too little for detailed math.
- Experiments
  - Experimental setup. Quantitative results. Qualitative results. Other expected results.
- Conclusion (Optional)

Tips for the Presentation

1. Make a Storyline.

2. Highlight Your Contributions and Efforts.

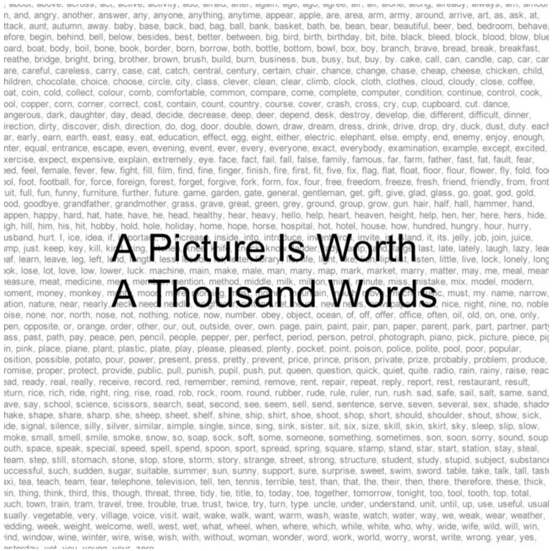
Your presentation is an advertisement of your project.

People will read your report later for details.

3. A picture is worth a thousand words.

After all, we are doing a computer vision course…

Animated figure is even better.



4. Less is More.

If you are not talk about a figure/text, remove it from your slides.

Only make 3~6 slides.

5. Practice.

Rehearse in front of your partners/friends.

Measure your time.

Record your voice.

Recurrent Autoregressive Networks for Online Multi-Object Tracking

Kuan Fang, Yu Xiang, Xiaocheng Li, Silvio Savarese

Stanford University

Stanford
ARTIFICIAL
INTELLIGENCE

Online Multi-Object Tracking

Goal: Reliably associate object trajectories with detections in each video frame based on their tracking history.

t_1 t_2 t_3

Challenges

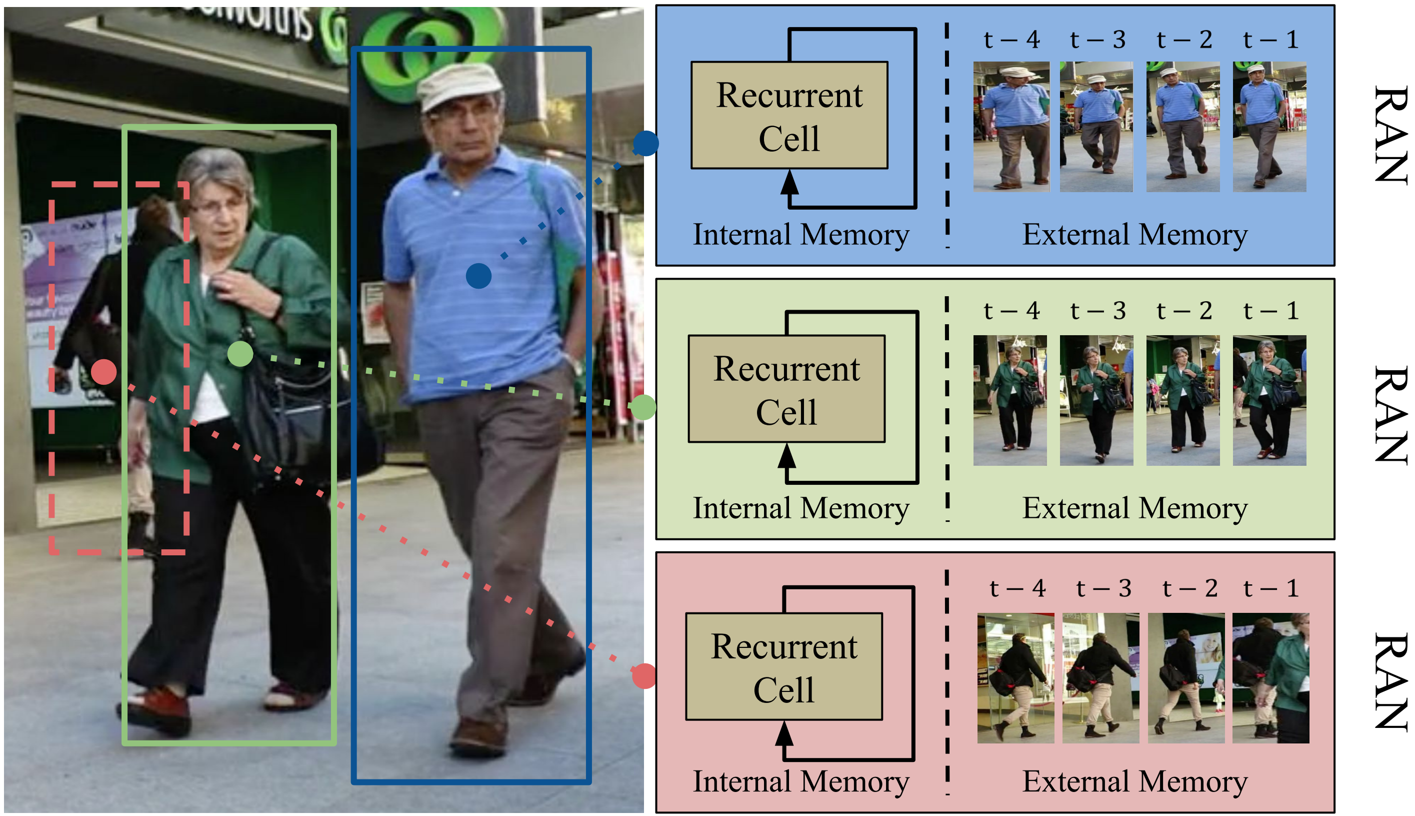
- Handle occlusions and false alarms.
- Train a neural network model using only limited amount of labeled videos.

t_1

t_2

t_3

Internal Memory and External Memory



Quantitative Results on MOT Benchmarks

Method	Mode	MOTA(↑)	MOTP(↑)	IDS(↓)
CNNTCM	Batch	29.6	71.8	712
MHT_DAM	Batch	32.4	71.8	**435**
NOMT	Batch	**33.7**	**71.9**	442
SCEA	Online	29.1	71.1	604
MDP	Online	30.3	71.3	680
AMIR15	Online	**37.6**	**71.7**	1,026
Our Model (RAN)	Online	35.1	70.9	**381**

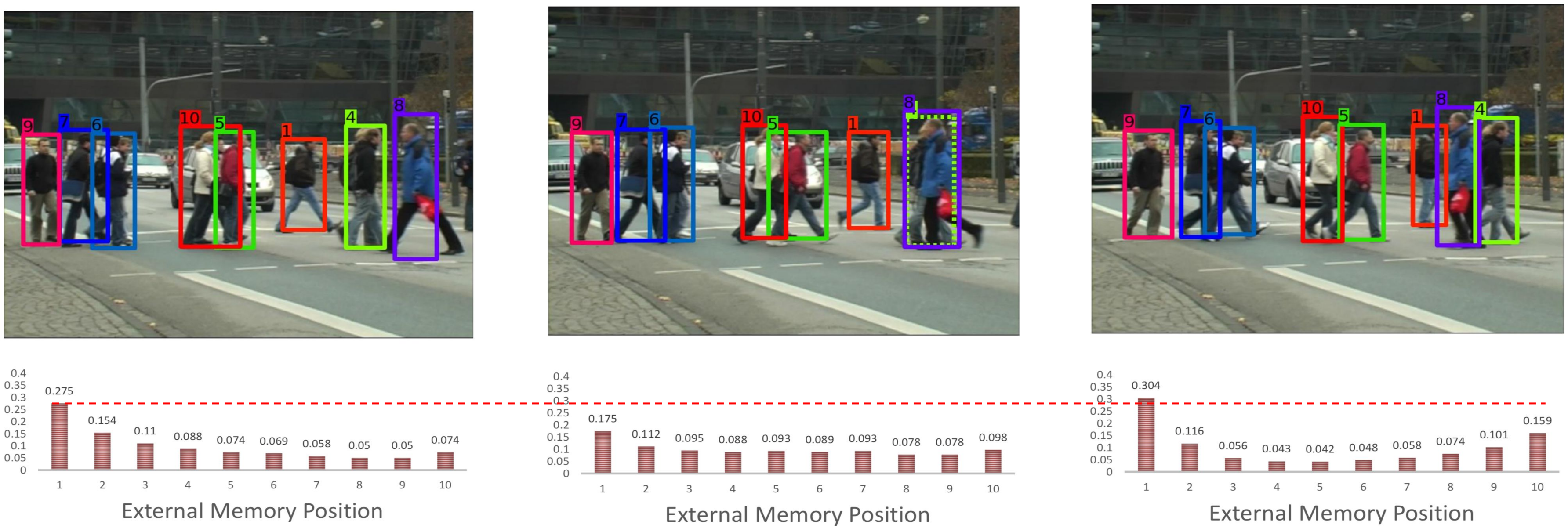
Tracking performance on MOT2015 benchmark.

Method	Mode	MOTA(↑)	MOTP(↑)	IDS(↓)
JMC	Batch	46.3	75.7	657
NOMT	Batch	46.4	76.6	**359**
NLLMPa	Batch	**47.6**	**78.5**	629
EAMTT	Online	38.8	**75.1**	965
oICF	Online	43.2	74.3	**381**
Our Model (RAN)	Online	**45.9**	74.8	648

Tracking performance on MOT2016 benchmark.

Adaptive Autoregressive Weights Estimated by RAN

The estimated parameters of **object 8**



Conclusions

- A novel multi-object tracking pipeline using neural networks.
- A data efficient network architecture using internal and external memories.
- Outperforms previous methods on the MOT benmarks.