

# Design an Effective Scientific Poster!



David Ramirez, Ph.D.,  
Recommendations and suggestions for posters  
to be presented at LXAI @ NeurIPS 2019

# Congratulations on getting to present your research!

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POSTER SESSIONS CAN BE HIGHLY INTERACTIVE AND CAN YIELD  
GREAT CONNECTIONS TO/FEEDBACK FROM OTHER RESEARCHERS!

# Disclaimer

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Find a style that works for you **and** effectively communicates your research.

What follows are suggestions and **not** rigid guidelines.

“Put your main message first”

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## Summary of Design

Deliver only key ideas

- Don't drag people through swamps of info

Think of apartments in big crowded cities

- Space is at a premium; use it wisely

No “one size fits all” approach

- Different projects require different styles

“Put your main message first”

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## Summary of Delivery

Attention tends to decrease with time

- Tell people “what you work on” and “what results you have” early

Identify your audience

- Adapt your presentation to their knowledge and interests

Show your interest

- Be energetic (speak loudly, slowly and clearly), despite being tired or bored
- Literally tell people what’s interesting

# Poster Design

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WHAT YOUR POSTER SHOULD NOT BE AND WHAT IT SHOULD BE

# Your poster should not be...

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## An eye exam *or* an eyesore

- Use large enough sans serif fonts
  - For example, 88pts title font, 50 pts header titles, 40 pts text
- Colors on your monitor may look horrible when printed
- Graphs and figures may be too small when printed
  - Everything must be readable from three feet away

This is a waste of space and hard to read.

Always leave “invisible” margins

This is a horrible  
combination

Fonts Matter



This is a bad idea

# Effective White Space

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Go read the [Wikipedia](#) entry for White Space and come back.

In other words: be mindful of the “unused” space (i.e., white space) in your poster

- Too little white space makes for a *busy* and *noisy* looking poster.
- Too much white space and your poster will look *empty* and *barren*.

Eyes will move towards white space for rest and focus on items within whitespace

- Always leave an “invisible” margin around the entire poster and items within
- [A good writeup about](#) white space

This is a waste of space and hard to read.

Always leave “invisible” margins



# Choosing Colors

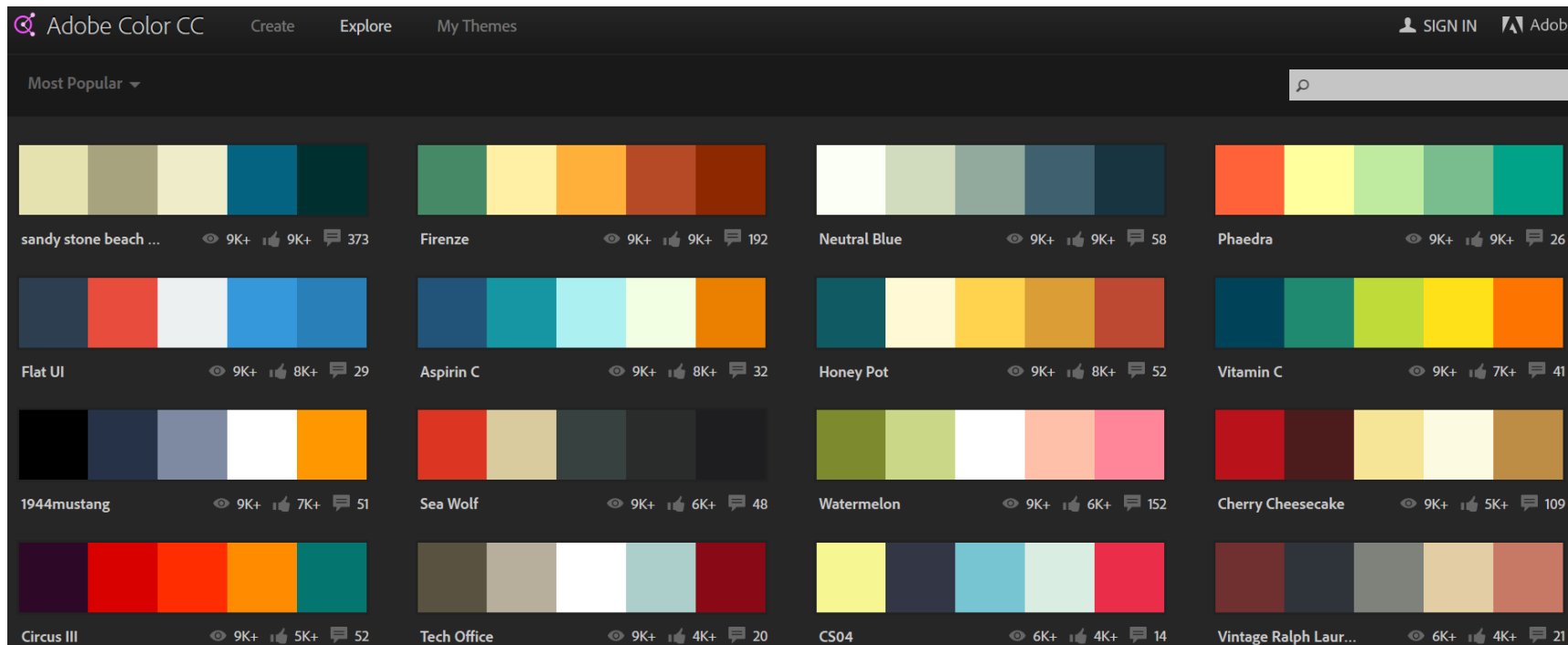
Don't overlap tones of the same color

- Always check how **printed** colors look
- Pro tip: Black font on a red background is a bad idea

This is a horrible  
combination

This is a bad idea

Show sufficient color contrast



## Color Picker Websites

- [colourlovers.com](https://www.colourlovers.com)
- [color.adobe.com](https://color.adobe.com)
- [coolers.co](https://coolers.co)

# Colors and Size of Figures

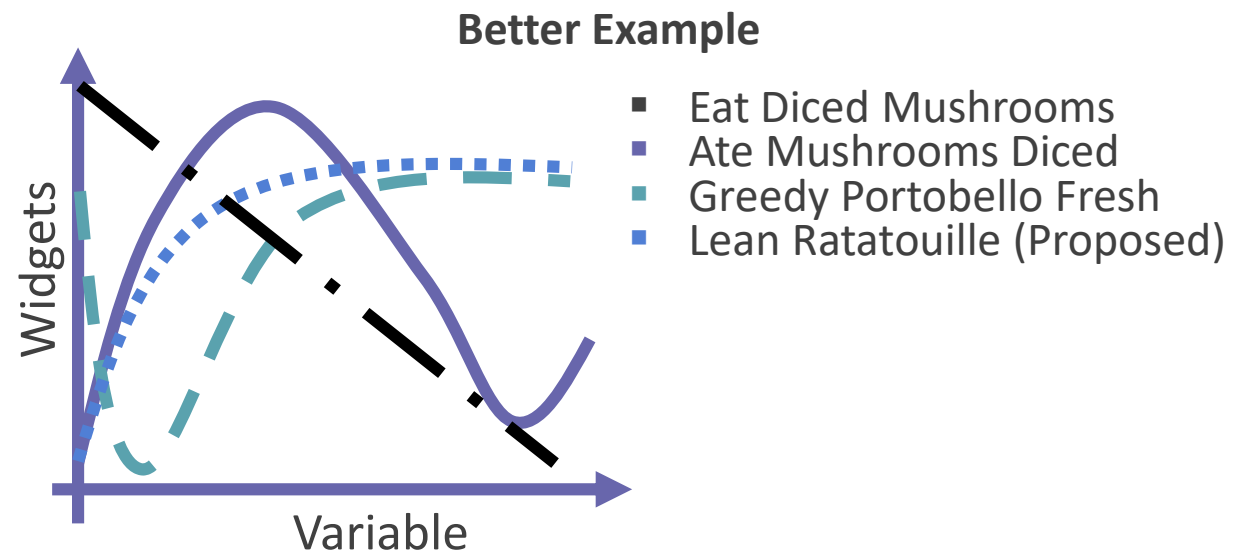
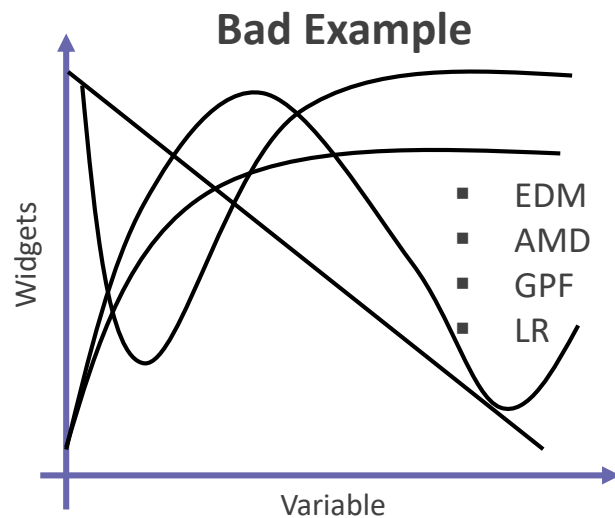
All legends, titles, axes, and figures should be readable at three feet!

Use acronyms for widely accepted terms

- Avoid acronyms in your figures, don't make your poster a memorization task

8% of males and 0.5% of females are color blind

- Most have difficulty distinguishing red/green/brown/orange or blue/purple
- Using dashed patterns helps better differentiate lines

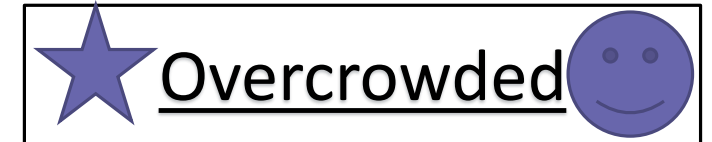


# Posters Are Not Papers

Do not copy/paste portions of text into your poster

- Do **NOT** use large portions of text
- Not every figure from your paper *needs* to be in your poster
- Figures and text may be *too* detailed

Always leave “invisible” margins



Great in a paper,  
but not good  
for a poster



## Introduction to User Cooperation Diversity

Mobile users' data rate and quality of service are limited by the fact that, within the duration of any given call, they experience severe variations in signal attenuation, thereby necessitating the use of some type of diversity. In this two-part paper, we propose a new form of spatial diversity, in which diversity gains are achieved via the cooperation of mobile users. Part I describes the user cooperation strategy, while Part II (see *ibid.*, p.1939-48) focuses on implementation issues and performance analysis. Results show that, even though the interuser channel is noisy, cooperation leads not only to an increase in capacity for both users but also to a more robust system, where users' achievable rates are less susceptible to channel variations.

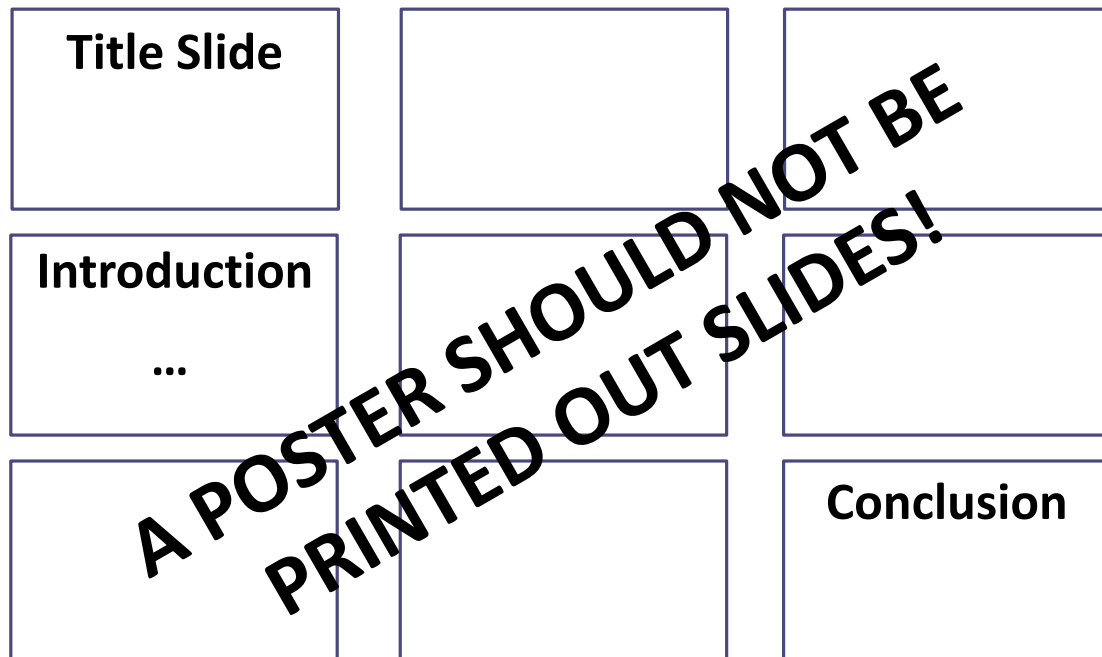
# Presentation Slides Are Not Posters

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Poster presentations let you engage with few people at a time

Oral presentations (i.e., slides) are made to simultaneously engage with many

**Different goals need different approaches!**



## Poster Title

**Good Idea: Use your  
space efficiently**

Note: Poster size limit for  
LXAI@NeurIPS is A0  
(i.e., 33x46 inches)

# Poster Design

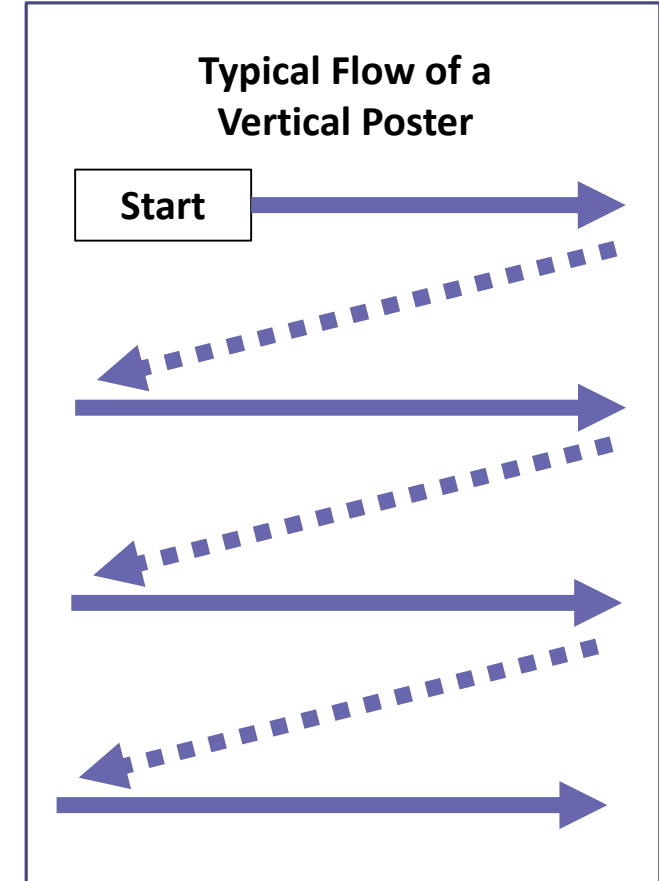
---

WHAT YOUR POSTER SHOULD NOT BE AND WHAT IT SHOULD BE

# Your poster should be...

(quasi) Self-presenting

- People may arrive while you're presenting
- Expect people to start on the top left, put key info there
- Allow people to scan your poster like they read (i.e., start at top left, then move right/down)



# Your poster should be...

---

## (quasi) Self-presenting

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- Expect people to start on the top left, put key info there

## Space Efficient

- Deliver only key ideas: “What you work on?” *and* “What results do you have?”

**Is the idea something your audience must know/is good to know/or is nice to know?**

Must Know	Good to Know	Nice to Know
Should be the focus of your poster!	Add some of these to the poster and say the rest	Leave out of the poster, and maybe say them

# Your poster should be...

## (quasi) Self-presenting

- People may arrive while you're presenting
- Expect people to start on the top left, put key info there

## Space Efficient

- Deliver only key ideas
- Think "1 image = 1k words"

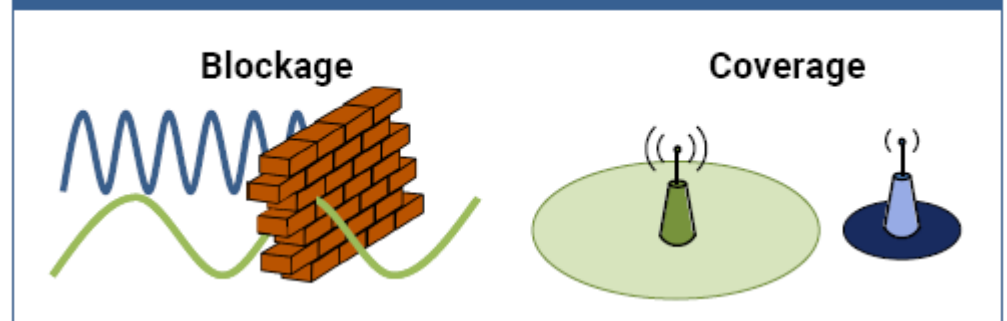
### Roadblocks

mmWave signals suffer from high power loss due to penetration and transmission. As such, mmWave signals can be blocked. A mmWave access point will suffer from less coverage, relative to lower frequency access point.

Too much text!

VS.

### Roadblocks



Graphical example works *if* you know some things about wireless communications



# Your poster should be...

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## (quasi) Self-presenting

- People may arrive while you're presenting
- Expect people to start on the top left, put key info there

## Space Efficient

- Deliver only key ideas
- Think "1 image = 1k words"

## A *logical* sequence of information

- Showcase your results in the area that people *see first*
  - *Give them a clear takeaway idea about your work*

# Your poster should be...

---

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## A *logical* sequence of information

- Showcase your results in the area that people *see first*
  - *Give them a clear takeaway idea about your work*

## Identify your co-authors, your university, affiliations, **and** sponsors!

- Use logos as space savers

# Poster Examples

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INEFFECTIVE POSTERS AND SOME BETTER ONES

# Areas for Improvement

Title is difficult to read

High contrast color choices (Yellow/Blue) do not look good in print

Too much white space in the middle

Flow through poster changes

- First column is top-down, then left-right but widths are uneven
- Where are the results?

Note: This was first draft of the poster, final version is in the next slide

## On the Impact of Blockage on the Throughput of Multi-tier Millimeter-Wave Network

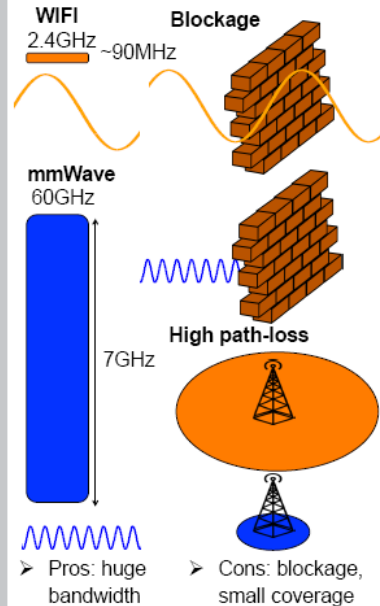
Shuqiao Jia, David Ramirez, Lei Huang, Yi Wang and Behnaam Aazhang

Department of Electrical and Computer Engineering, Rice University

Central Research Institute, Huawei Technologies Co., Ltd.

### Millimeter Wave

- MmWave is the band of spectrum between 30 GHz to 300 GHz.

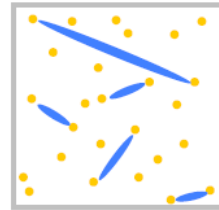


### Problems

- Is it possible to implement mmWave channels in the wireless network?
- How much traffic can the mmWave network carry, especially when the users scale up?
- How should the information be transferred in the mmWave network?

### Benchmark

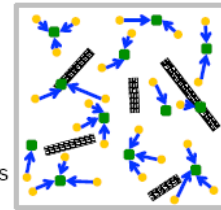
- $n$  users, each with 1 RF chain
- no blockage, full coverage



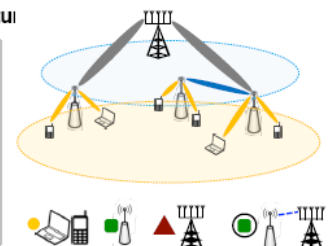
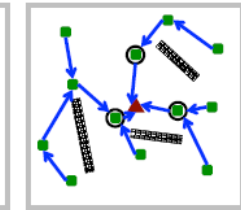
### Multi-tier mmWave Network

- $n$  users
- 1 RF chain
- $M(n)$  APs
- $L(n)$  RF chains
- 1 backhaul
- $L$  RF chains
- The blockage scales up with density  $n$

#### First tier: users

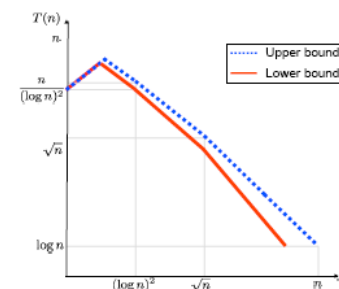


#### Second tier: infrastructure

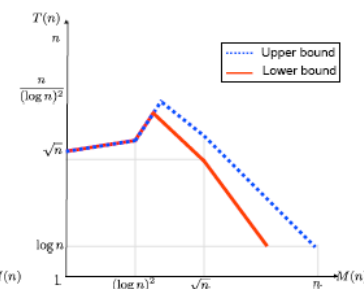


### Performance

#### Blockage Scenario I



#### Blockage Scenario II

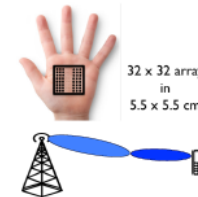


### Transmit protocol

- MmWave channels can be deployed in the multi-tier wireless network?
- MmWave has the same cut-set upper bound as the benchmark.
- The cutset upper bound of mmWave network can be achieved by using the proposed transmission protocol.

### Solutions

#### Large antenna array



#### Dense Infrastructure



### Conclusions

- MmWave channels can be deployed in the multi-tier wireless network?
- MmWave has the same cut-set upper bound as the benchmark.
- The cutset upper bound of mmWave network can be achieved by using the proposed transmission protocol.

# Good Stuff

Clear title (added logos)

Minimal text

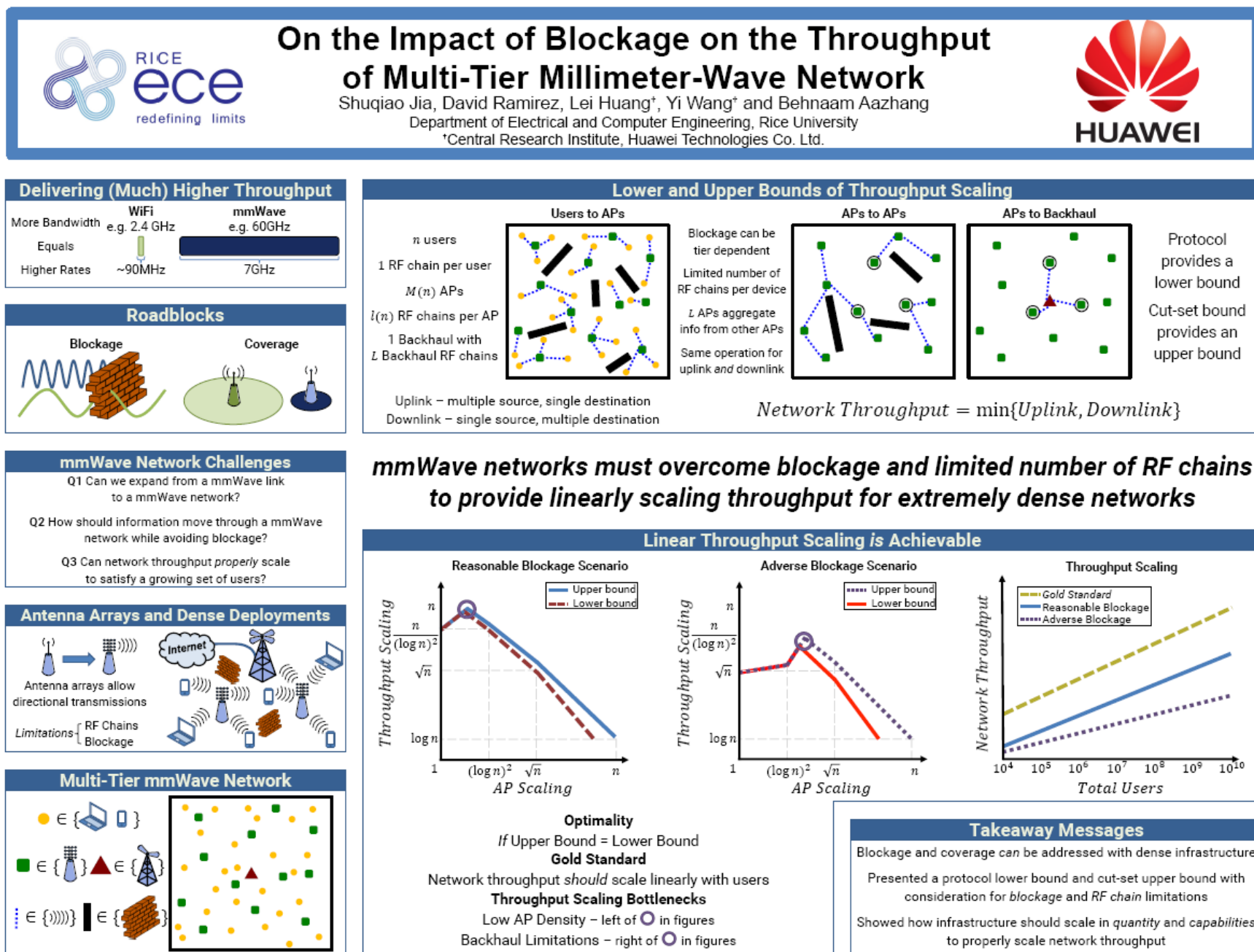
Better use of white space  
than in previous version

# Areas for Improvement

Titles in boxes would be  
better as white on blue

Still has an odd layout at the  
bottom right (i.e., white  
space gets weird)

Importance of *linear  
throughput* (main result) is  
not motivated



# Good Stuff

Central eye-catching space delivers meaningful result


Note: not all text can/should be replaced!

# Areas for Improvement

Too much text in bottom center area


Too much white space in bottom right

Too thin an “invisible margin” between top left/right boxes and title box




## Styrofoam: Protecting Symbol Fidelity in Screen►Camera Communication

David Ramirez, Robert LiKamWa, and Jason Holloway  
Department of Electrical and Computer Engineering, Rice University




### Screen-to-camera link


Sending data from a screen to a camera carries multiple benefits, including:



Pairless infrastructure




Multi-cast transmission




Targeted interaction


A high data-rate screen-to-camera link enables many scenarios, such as:



Sending personal audio at a museum

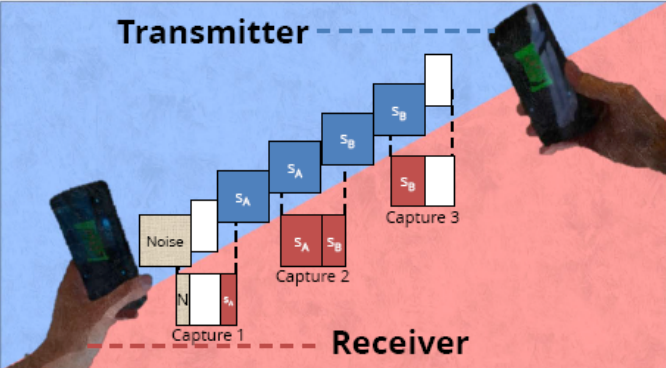


Enhanced-media menus & maps



Wearable Transmissions

### Styrofoam characterizes and constrains inter-symbol interference

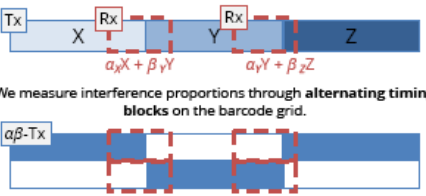


**Transmitter**

**Receiver**

### Inter-symbol Interference

Symbol transmission in VLC Links are challenged by **Inter-symbol Interference**, in which a single camera exposure receives multiple symbols.



We measure interference proportions through **alternating timing blocks** on the barcode grid.

### Frame Scheduling

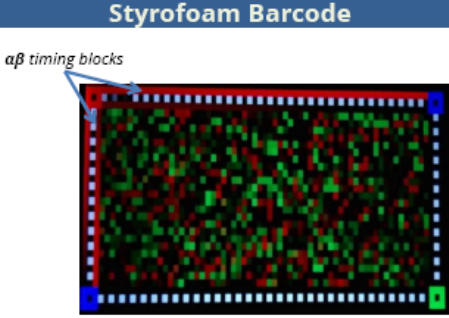
Symbols are separated by a **Symbol Interval**.

Exposures are separated by a **Capture Interval**.

Symbol interval must be **larger** than the capture interval to ensure that each symbol is exposed.

This also guarantees that if a symbol undergoes interference, it is captured at least twice.

### Styrofoam Barcode



$\alpha\beta$  timing blocks

A column set to a max value represents max exposure under screen/camera conditions.

Alternating timing columns are activated for every other exposure to encode  $\alpha$  and  $\beta$ .

Symbols are transmitted on the remaining grid.

### Contributions

The Styrofoam Project:

- Characterizes inter-symbol interference timing
- Constrains frame rates to ensure symbol visibility
- Interposes blank frames to ensure resolvability

In the future, we plan to study the effects on noise sources on the discretization of symbol levels. This will include investigations on

- Physical screen-camera geometry
- Camera filter “bleeding”
- Display color fidelity

### Resolvability with Styrofoam Blocks

A sequence of captures can be represented as a system of equations, where each capture introduces an **equation** with **one or two variables**:

$$r_j = \alpha_j s_A + \beta_j s_B$$

Mixed capture

$$r = \alpha_1 s_A$$


Pure capture

As any symbol in a mixed capture appears in two captures, this creates a chain of captures which can eventually be resolved by a pure capture.

We periodically insert **Styrofoam Blocks** – blank frames – to ensure pure captures occur regularly, limiting the latency of resolvability.

Our timing assures a sequence between Styrofoam blocks will have a symbol corresponding to  $\alpha$  ( or  $\beta$  ) > half of a frame's exposure. The remainder of the exposure can be filled by the Styrofoam block. Thus, Styrofoam blocks only need be half as long as symbol transmissions.

We schedule the display sequence as having:  
each Styrofoam block transmitted for one frame, and  
Each symbol transmitted for two frames.



**Contact**  
David Ramirez, Robert LiKamWa, and Jason Holloway  
E-mail: dar4, robliw, jh25@rice.edu

**Department of Electrical and Computer Engineering**  
Rice University, Houston, TX

**References**

1. M. Anderson, S. Matsu, S. Chandrasekar, and M. Stokes, Proposal for a standard default color space for the internet-sRGB, in *Color and Imaging Conference*, number 1, pages 228–245, Society for Imaging Science and Technology, 1996.
2. T. Hsu, R. Zhou, and G. Yang, Colored color barcode encoding for eye-free systems, in *Proc. Matings*, pages 85–90, ACM, 2012.
3. W. Hu, H. Gu, and Q. Pu, Light-ray unpermeated visual communication over screen-camera link, in *Proc. Mediscon*, pages 15–20, ACM, 2013.
4. J. L. G. and S. R. R., Unpermeated visual communication over screen-camera link, in *Proc. Mediscon*, pages 15–20, ACM, 2013.
5. R. LiKamWa, et al. Energy characterization and optimization of image sensing toward continuous mobile vision, in *Proc. Matings*, ACM, 2013.
6. D. O'Brien, L. Zeng, H. LeMeh, G. Dauter, J. W. M. and S. R. R., Visible light communications: Challenges and possibilities, in *Personal, Indoor and Mobile Radio Communications, 2010. PIMRC 2010 IEEE 19th International Symposium*, pp. 1–5, IEEE, 2010.
7. S. R. R., A. Ahmed, and D. R. R., From interference-free wireless data using led-camera pairs, in *Proc. Matings*, ACM, 2010.
8. D. R. R., L. Chen, and G. S. S., Toward fluid, visible and ubiquitous interaction with paper using recursive jfif barcodes, *Personal Mobile Interaction*, 2012.



# Good Stuff

Single example used in introduction, results, and future work (hard hat)

States goal early and clearly

# Areas for Improvement

Nature of this research necessitates images, but there's too much going on!

- Pick key results, and present those

Too much information!

## Toward Long Distance, Sub-Diffraction Imaging Using Coherent Camera Arrays

Jason Holloway<sup>†</sup>, M Salman Asif<sup>†</sup>, Manoj Kumar Sharma<sup>‡</sup>, Nathan Matsuda<sup>‡</sup>, Roarke Horstmeyer<sup>§</sup>, Oliver Cossairt<sup>†</sup>, Ashok Veeraraghavan<sup>†</sup>

<sup>†</sup>Rice University, Houston TX <sup>‡</sup>Northwestern University, Evanston IL <sup>§</sup>California Institute of Technology, Pasadena CA

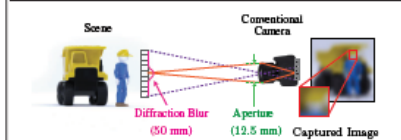


### Goal: Improve Spatial Resolution

Improve spatial resolution beyond the diffraction limit in long-distance imaging

Solution presented here: use coherent light (active illumination) to synthetically increase aperture size

### Limiting Factor in Spatial Resolution

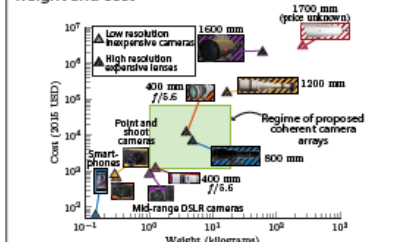


In long-distance imaging, diffraction blur limits the maximum spatial resolution that can be achieved

$$r = 1.22 \frac{\lambda}{D}$$

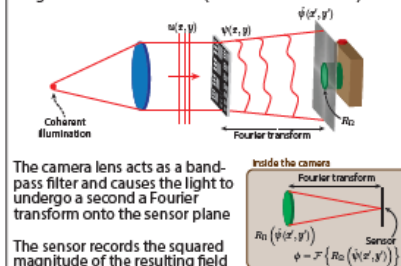
where  $\lambda$  is the wavelength of light,  $D$  is the diameter of the aperture (lens), and  $r$  is the smallest resolvable feature on the object.

Increasing diameter of the lens drastically increases weight and cost



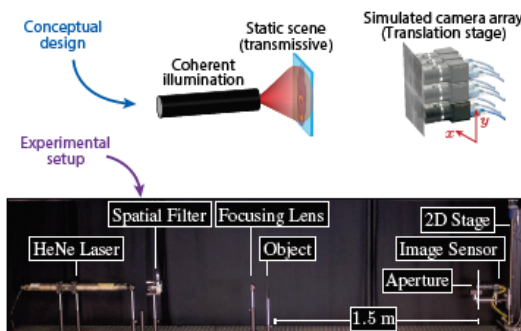
### Coherent Image Formation Model

Light passes through (or reflects off) the scene, and undergoes a Fourier transform (Fraunhofer diffraction)

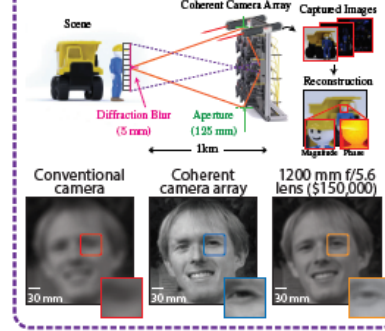


### Fourier Ptychography to Improve Spatial Resolution

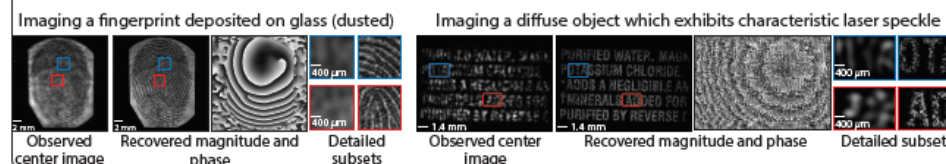
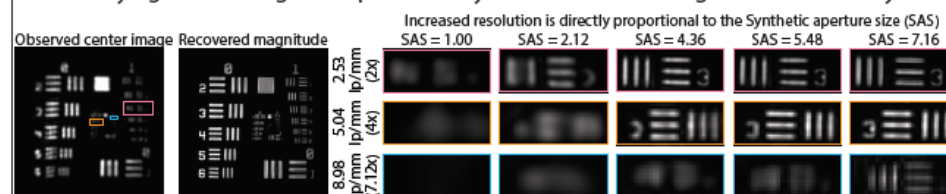
#### Experimental Results



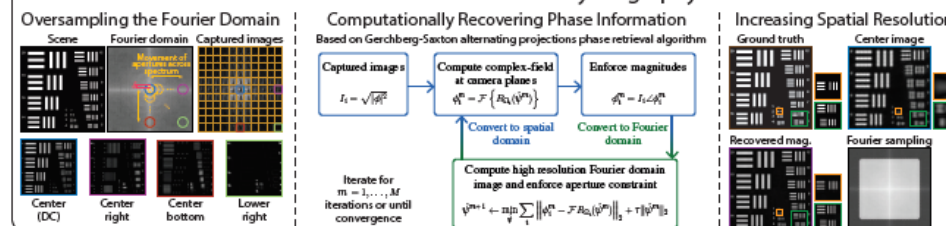
#### Simulation Results



Verifying resolution gains experimentally with a resolution target 1.5 meters away



### Phase Retrieval and Fourier Ptychography



### Results

Built experimental prototype for transmissive Fourier ptychography

Demonstrated 7x increase in spatial resolution

1.5 meter separation between scene and camera platform

Successfully recovered high-resolution magnitude and phase for diffuse water bottle label

### Limitations of Fourier Ptychography

Long sampling times (>60 minutes)

Large dynamic range, 50-100x difference in brightness

Must register images with sub-pixel accuracy

Precise shifting of the camera requires motorized translation stage

### Future Work



Build a camera array for simultaneous image acquisition

Use multiplexed illumination to over-sample Fourier domain

Enable hand-held acquisition

Extend to reflective mode prototype

### For More Information

Download the paper, code, and images at the project webpage

<http://jrholloway.com/projects/towardCCA>

### Funding and acknowledgements

The authors would like to thank Richard Baranuik and Aggelos Katsaggelos for their thoughtful discussions and comments.

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NSF grants IIS-1116718, CCF-1117939, CCF-1527501  
NSF CAREER grant IIS-1453192  
ONR grant 1(GG010550)/N00014-14-1-0741  
Northwestern University McCormick Catalyst grant.

# Good Stuff

Not everything has to be boxes, just keep a simple *flow*

Math terms are defined and theorems are in *plain* English

- Be clear
- Math is kept in the paper!

# Areas for Improvement

Figures at bottom should be bigger and line colors/designs improved

## SafePredict: A Machine Learning Meta-Algorithm

### That Uses Refusals to Guarantee Correctness

David Ramirez (dard@princeton.edu), Mustafa A. Kocak, Elza Erkip, and Dennis E. Shasha



#### Introduction

Machine learning and prediction algorithms are the building blocks of automation and forecasting.

*SafePredict*, a meta-algorithm, takes predictions from underlying algorithms and decides whether or not to predict with them.



Algorithms benefit from a lower error rate.



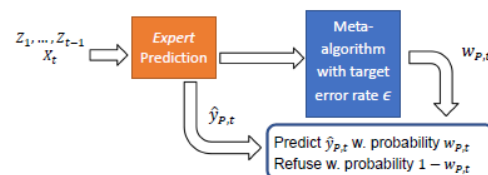
Observation



Crowd of experts (i.e., algorithms) are asked to predict. Dummy expert always *refuses* to predict.

#### Problem Setup

Online prediction setup with refusal option.



Prediction  $\hat{y}_{P,t}$  or refusal  $\hat{y}_{D,t}$  suffer a loss  $l_{P,t}$ ,  $l_D \in [0,1]$ . Mistakes are costly, but we learn by observing.

#### Definitions

$t$  = time index,  $T$  = total observations,  $\eta$  = learning rate

$T^* = \sum_{t=1}^T w_{P,t}$ , expected predictions

$L_T^* = \sum_{t=1}^T l_{P,t} w_{P,t}$ , expected cumulative loss

$V^* = \sum_{t=1}^T w_{P,t} w_{D,t}$ , variance for number of predictions

$w_{P,t+1} = \frac{w_{P,t} e^{-\eta l_{P,t}}}{w_{P,t} e^{-\eta l_{P,t}} + w_{D,t} e^{-\eta l_D}}$  weight shift rule

#### Algorithm Properties

Def. A meta-algorithm is *valid* if, as  $T^* \rightarrow \infty$ , average expected loss  $\leq$  target error rate.

Def. A meta-algorithm is *efficient* if, as  $T^* \rightarrow \infty$ , refusals occur only a finite number of times.

#### Main Results

##### Safe-Predict is valid and efficient!

Guaranteed with no assumptions on data or underlying experts, but asymptotic in the number of non-refused predictions.

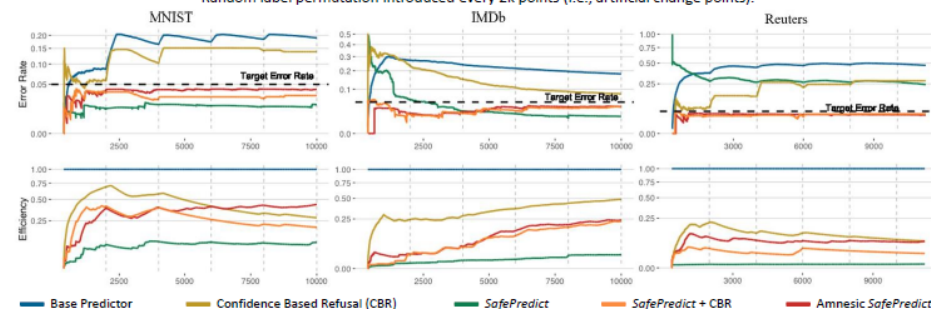
**Theorem 1.-** With learning rate  $\eta = \Theta(\frac{1}{\sqrt{T^*}})$ , *SafePredict* is guaranteed *valid* for any  $P$ . Particularly  $\frac{L_T^*}{T^*} - \epsilon = O(\frac{\sqrt{V^*}}{T^*}) = O(\frac{1}{\sqrt{T^*}})$ .

**Theorem 2.-** If  $\limsup_{t \rightarrow \infty} \frac{L_{P,t}}{t} < \epsilon$  and  $\eta T \rightarrow \infty$ , then *SafePredict* is *efficient*.

#### Experimental Results

Randomly permute data, choose first 10k points for experiment. Target error rate  $\epsilon = 0.05$ .

Random label permutation introduced every 2k points (i.e., artificial change points).



#### References

Mustafa A. Kocak, D. Ramirez, et al., "SafePredict: A Meta-Algorithm for Machine Learning That Uses Refusals to Guarantee Correctness." Available on arXiv.  
Nick Littlestone, and Manfred K. Warmuth, "The weighted majority algorithm." *Information and computation*, 1994.  
Claudio De Stefano, et al., "To reject or not to reject: that is the question-an answer in case of neural classifiers." *IEEE Trans. on Systems, Man, and Cybernetics, Part*, 2000.  
Li, Lihong, et al., "Knows what it knows: a framework for self-aware learning." *Machine learning*, 2011.  
Amin Sayedi, et al., "Trading off mistakes and don't-know predictions." *Advances in Neural Information Processing Systems*, 2010.



# Good Stuff

Visual aids for explaining problem and setup

Delivers key message early and in a very visible position

Use of color coding text adds emphasis

# Areas for Improvement

Could color code visual representation of contributions to match color coded text

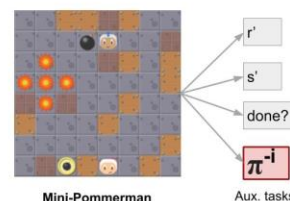
Feels text heavy in the bottom

Could align "Results" and "Conclusion" to same invisible vertical line

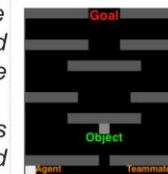


## Opponent Modeling with Actor-Critic methods in Deep RL

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(\*Equal Contribution)



Asynchronous Advantage Actor-Critic (A3C) can be extended with opponent modeling to accelerate and stabilize learning in cooperative and competitive tasks  
Our architectures learn the opponent/teammate's policy as an auxiliary task, besides the standard actor (policy) and critic (values)



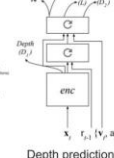
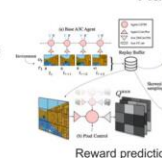
Cooperative Multiagent Transport Problem

### Background Best response

From game theory: "Strategy which produces the most favorable outcome for a player, taking other players' strategies as given"

- Help with representation learning
- No additional feedback from the environment
- Successful examples in navigation and games
- Related to general value functions
- Theoretical properties are still an open question

### Auxiliary Tasks



### Contributions



a) A3C: Asynchronous Advantage Actor-Critic [Mnih et al. 2015]

b) OMS-A3C: Opponent Modeling by parameter Sharing

c) OMF-A3C: Opponent Modeling by policy Features

### Parameter sharing

- Proposed in multiagent DRL to reduce the number of parameters to learn
- Main idea: perform centralized learning where agents share the same network (i.e., parameters) but the outputs represent different agents
- Our architecture OMS shares all layers except the last one, where it adds another head for the opponent/teammate policy

### Opponent/Teammate policy features

- After the convolutional layers, the fully connected layers are divided in two sections:
  - one specialized in the opponent policy
  - and the other in the actor and critic (of the learning agent)
- The opponent/teammate policy features (in the latent space) are those that help to predict the opponent/teammate policy
- Those policy features condition (via element-wise multiplication) the learning agent behavior

### A3C loss:

$$\mathcal{L}_{A3C} \approx \mathcal{L}_v + \mathcal{L}_\pi - \mathbb{E}_{s \sim \pi} [H(\pi(s, \cdot), \theta)]$$

### Opponent/teammate loss function:

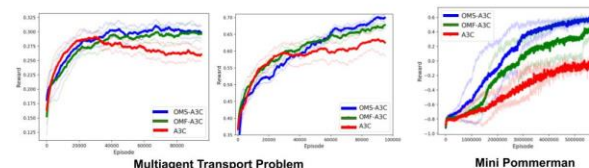
- Cross entropy between observed and predicted action

$$\mathcal{L}_{OM} = -\frac{1}{N} \sum_i a_o^i \log(\hat{a}_o^i)$$

### Modified loss function for OMS and OMF:

$$\mathcal{L}_{OMS-A3C} = \mathcal{L}_{A3C} + \lambda_{OM} \mathcal{L}_{OM}$$

### Results



- Input is 16x16 pixel representation
- Trained with two different teammates
- Each teammate preferred certain route to reach the goal
- Each experiment uses 12 CPUs for 6 hours

- Input is 18x18 board representation
- Against a Baseline Opponent who uses Dijkstra's algo and stochastic movements
- Trained for 3 days with 50 CPUs

### References for A3C and Auxiliary Tasks:

- Mnih, Volodymyr, Arka Paszke, John Agnew, Timothy Lillicrap, Tim Harley, David Silver, and Koray Kavukcuoglu. "Asynchronous methods for deep reinforcement learning." In International conference on machine learning, pp. 1929-1937. 2016.
- Jaelenberg, Max, Volodymyr Mnih, Wojciech Marian Czarnecki, Tom Schaul, Joel Z. Leibo, David Silver, and Koray Kavukcuoglu. "Reinforcement learning with unsupervised auxiliary tasks." arXiv preprint arXiv:1611.05397 (2016).
- Mironski, Piotr, Razvan Pascanu, Fabio Viola, Hubert Soyer, Andrew J. Ballard, Andrea Barino, Misha Denil et al. "Learning to navigate in complex environments." arXiv preprint arXiv:1611.03673 (2016).

### Conclusions

- Auxiliary tasks in deep RL with opponent modeling are largely unexplored
- We propose two architectures that improve learning when doing opponent/teammate modeling in deep RL
- In cooperative settings our proposals were able to learn coordination faster and more robustly compared to A3C
- In the competitive simultaneous move game of Pommerman, our agents successfully obtain a best response that resulted in higher scores in terms of rewards
  - Our agents learned to force the opponent to commit suicide by blocking its moves

### BONUS

Poster Session 2, Poster 7: Skynet: A Top Deep RL Agent in the Inaugural Pommerman Team Competition (#90)  
Poster Session 1, Poster 3: Predicting When to Expect Terminal States Improves Deep RL (#117)

# Get Feedback for your Poster

Have others critique your poster before printing!

Do a test printout on normal sized paper

Practice your pitch

- Have them answer the “Seven Key Questions” (adapted from Dr. Hewitt)

## After presenting your poster, can your listener answer the following questions?

(Adapted from Dr. Jan Hewitt’s “Seven Key Questions”)

1. What is the focus or problem to be solved?
2. Why is the problem important?
3. What has been done?
4. What method was used to solve the problem?
5. What are the results?
6. What is the unique contribution?
7. What are possible applications?

# Poster Delivery

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HOW DO YOU SAY WHAT YOU HAVE TO SAY

# When presenting...

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Do **not** read from your poster

- With high probability your audience can read

Do **not** give your back to your audience

- They came to see you *and* the poster

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Do **not** give your back to your audience

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Adapt your pitch

- You'll get bored, and it will show. Stay enthusiastic!

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Adapt your pitch

- You'll get bored, and it will show. Stay enthusiastic!

Do **not** drag every audience member through all the details

- Not everyone is into Eisenstein integers as much as you are!

# When presenting, you should...

---

Have different pitch lengths of your poster

- Short - 90 seconds
- Medium - 3-5 minutes
- Long - as *long* as listener is interested and conversation is meaningful for your work

# When presenting, you should...

---

Have different pitch lengths of your poster

- Short - 90 seconds
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Tricky to do, but try to read you listener's body language

Not asking you to come up with three entirely ***different*** pitches

*Ideally* the 90 seconds are built into the “3-5 minute” version

Feel free to keep going *if* your listener is interested **and** conversation is meaningful!



# When presenting, you should...

---

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- Medium - 3-5 minutes
- Long - as *long* as listener is interested and conversation is meaningful for your work

Tailor your presentation and read your audience

Tip: Skip some details by asking “Are you familiar with X..?”

Tip: Ask your audience who they are and what they work on  
e.g., “What’s your role at University of X?”

(Lets you rest from talking and audience gets a chance to rest from listening!)

# When presenting, you should...

---

Have different pitch lengths of your poster

- Short - 90 seconds
- Medium - 3-5 minutes
- Long - as *long* as listener is interested and conversation is meaningful for your work

Tailor your presentation and read your audience

- Ask your audience who they are and what they work on

Show enthusiasm and interest

- If you're bored/uninterested, then your audience will be bored/uninterested
- Phrases like "This is something I really like..." tells the audience how to feel
  - Use sparsely to sound genuine!

# When presenting, you should...

---

Have different pitch lengths of your poster

- Short - 90 seconds
- Medium - 3-5 minutes
- Long - as *long* as listener is interested and conversation is meaningful for your work

Tailor your presentation and read your audience

- Ask your audience who they are and what they work on

Show enthusiasm and interest

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- Phrases like "This is something I really like..." tells the audience how to feel

Be ready for (and open to) curve balls

- Posters are an interactive experience with the audience

# Curve Ball Questions

---

Paraphrase and repeat the questions you hear to how you understand them

- Do this to make sure you're answering what people are asking

You have not read every paper out there

- “That sounds like interesting work, do you remember the title or authors?” sounds better than “Sorry, I don’t know that work”

Be open to expanding your work

- “That is outside of the scope of what we are looking at, but we could consider extending our work” sounds better than “No, I didn’t do that”

Follow up with people that gave you the better questions

- Try and talk with them later on during the workshop or make sure to get their email!

# Presentation Structure

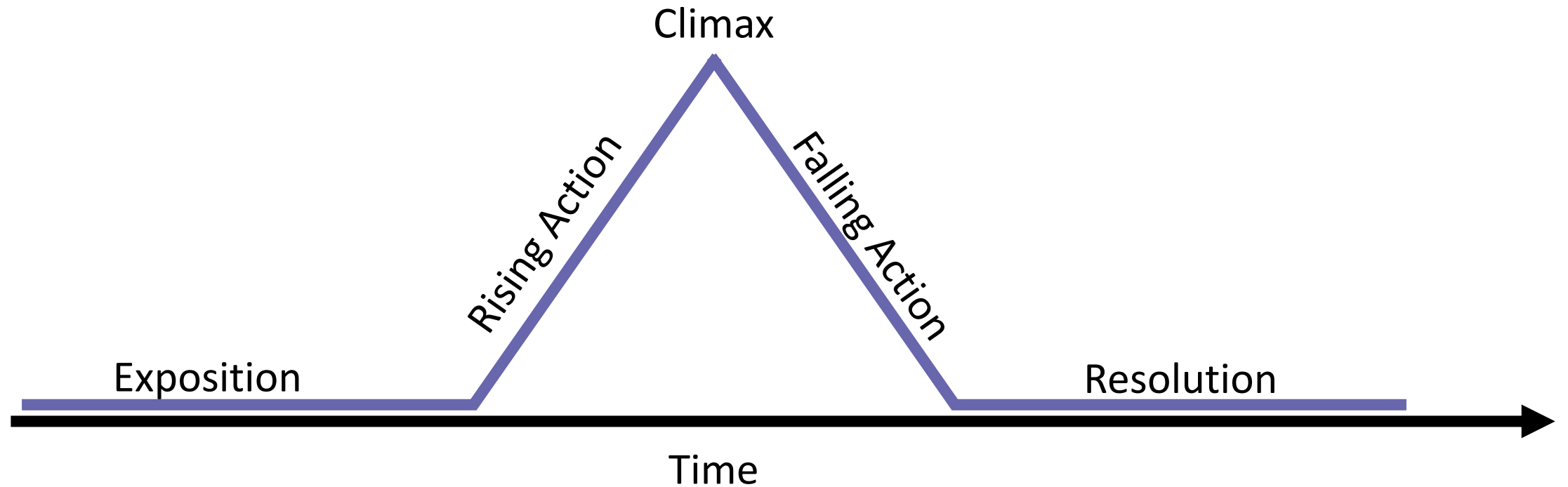
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FREYTAG AND YOU!

# Dramatic Structure (Freytag's Pyramid)

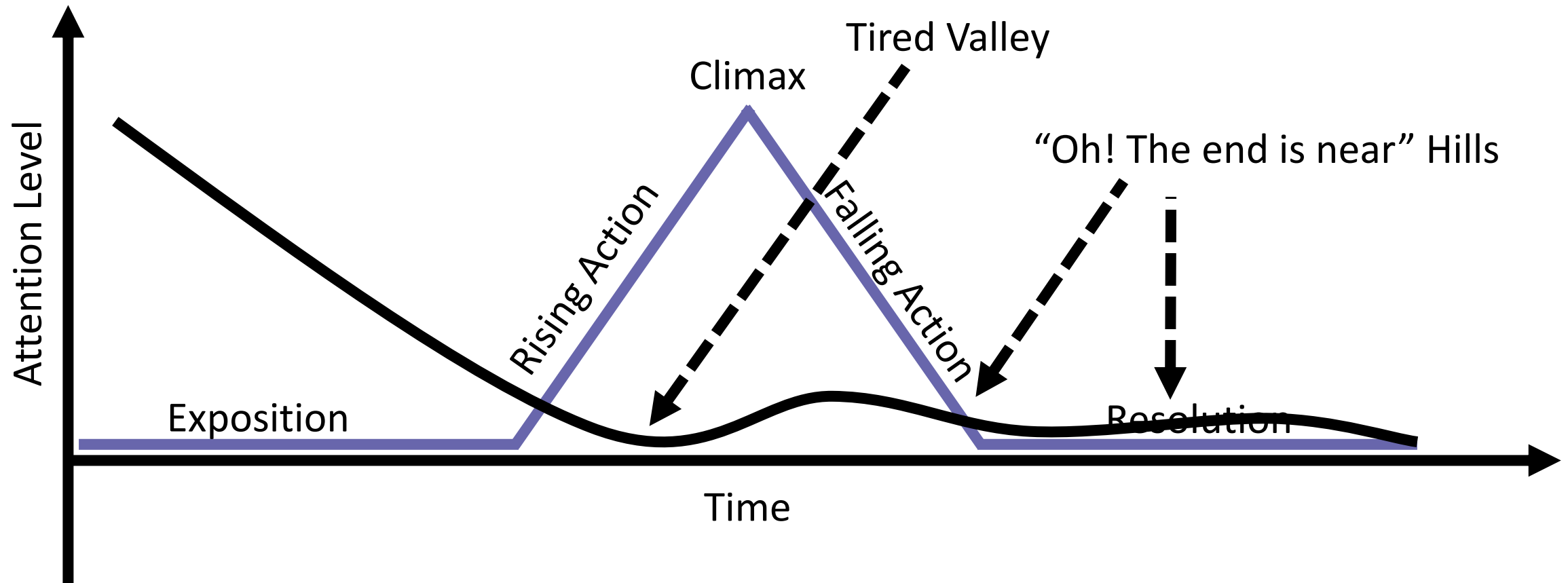
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Movies, books, and stories are built using Freytag's Pyramid



Perfect when audience is pre-disposed to be invested in the story  
(e.g., going to the movies, at the theater, or reading a book)

# What if your audience is not pre-disposed?

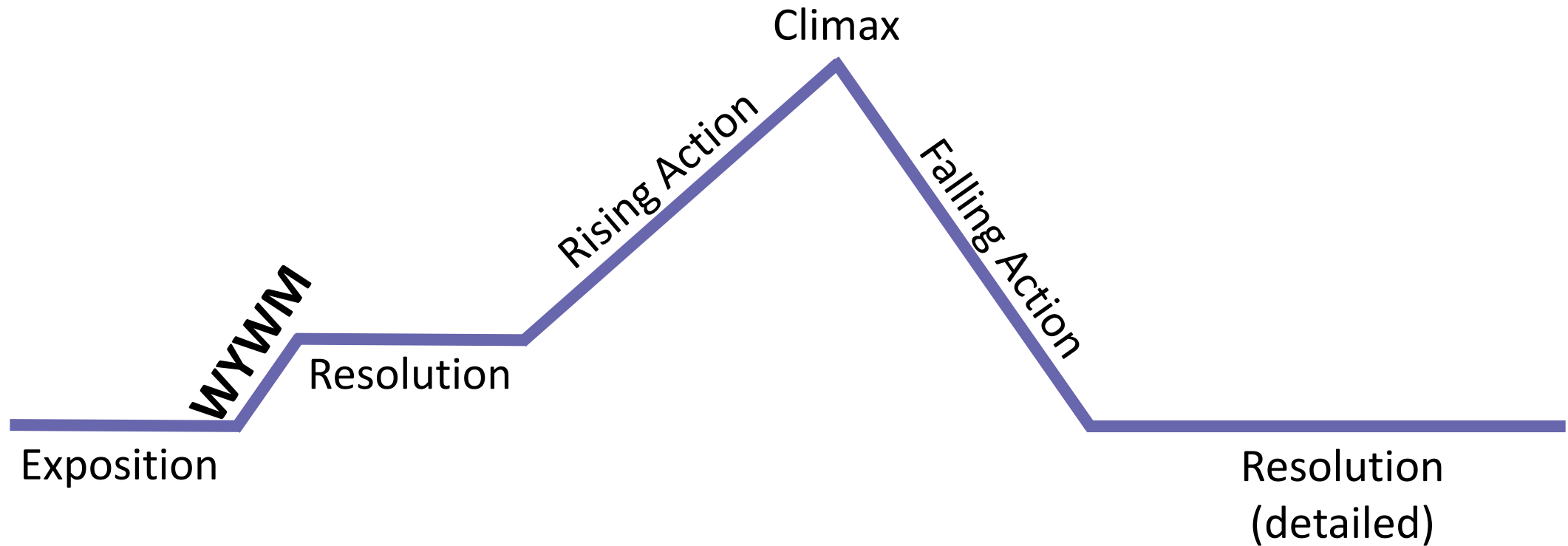


Less Attention = Less Retention

Give key ideas while you have their attention!

# Proposed Presentation Structure

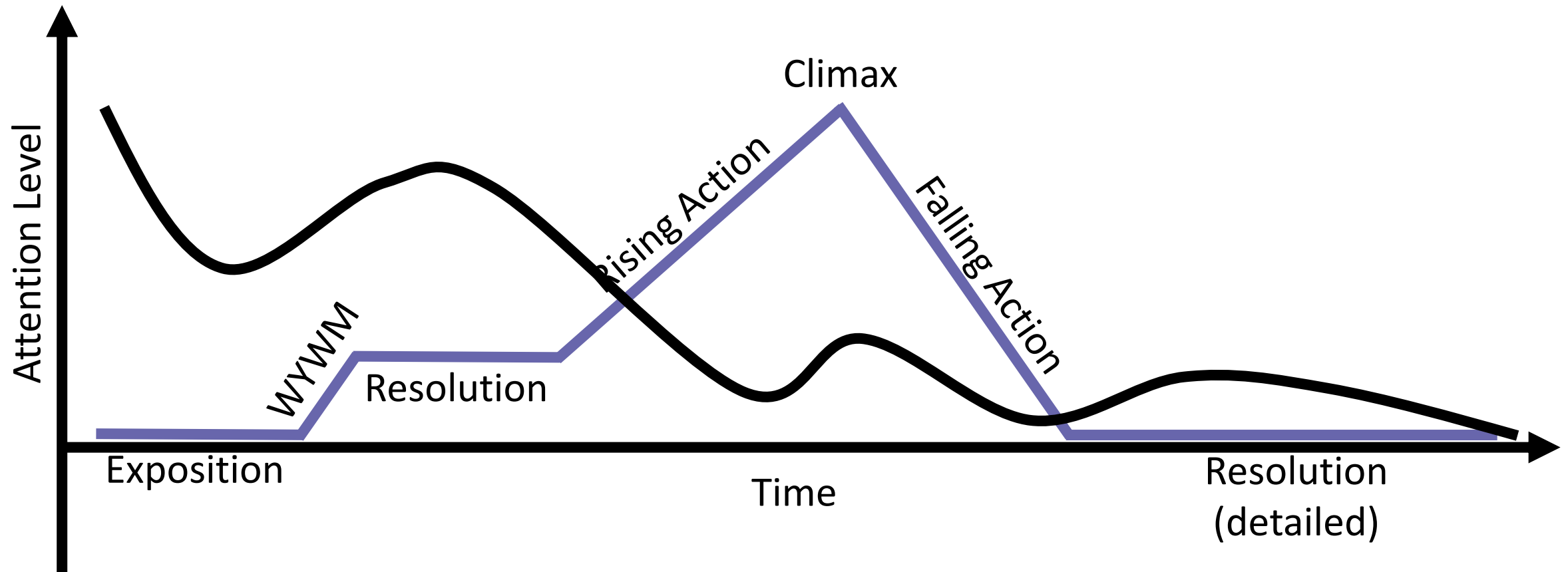
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**WYWM** = Why Your Work Matters (a.k.a., why are you doing this?)  
This is where your key ideas are presented (i.e., early)!

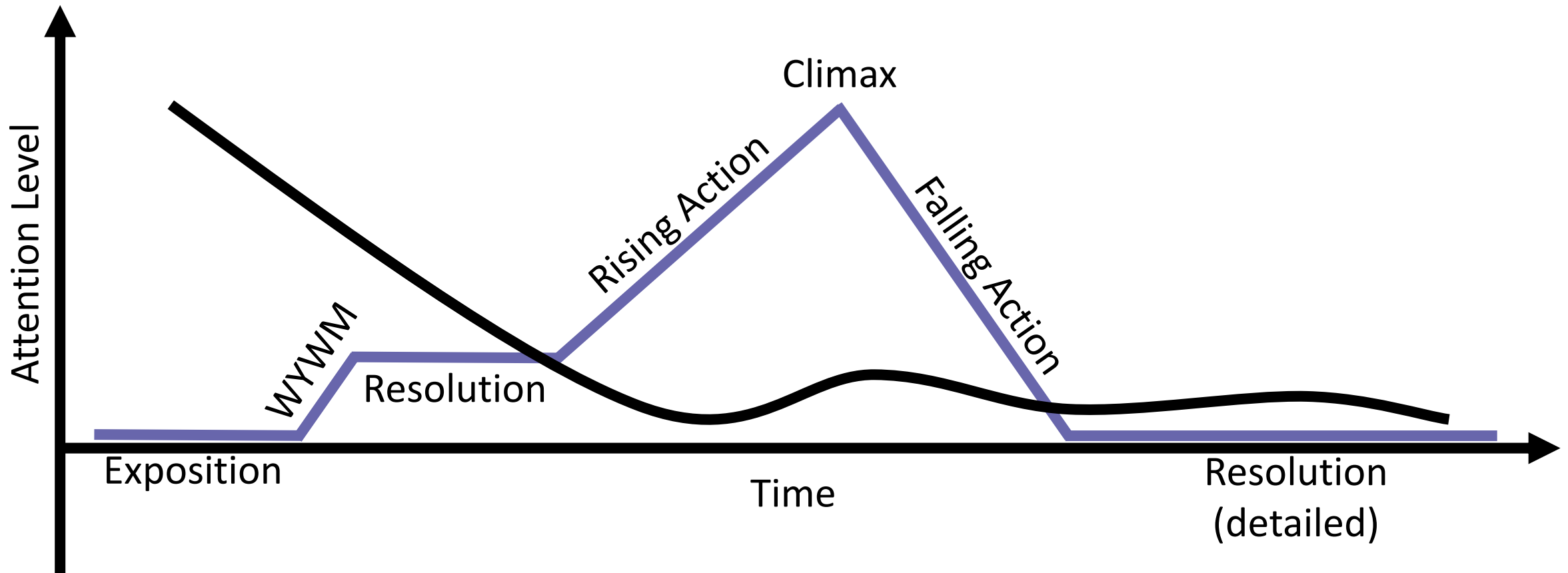


# Expected Attention Level



WYWM should boost attention and foreshadow a strong finish!  
Hook your audience into listening to the rest of your talk!

# If *WWYM* doesn't land with your audience...



**“Worst case”:** while you still had their attention, you delivered your message!  
(Remember my “Put your main message first” slides at the beginning?)