

Research In Context

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Good Citizen of CVPR Workshop 2018



What context?

- Fact: We do research to understand images automatically.
- Context: Where does the average person see images most frequently?
 - Likely in the media
- Context: Who cares about this research?
 - Impact of persuasive images on society
 - Outreach and education
- Context: Who does this research?
 - Fostering and mentoring students
 - Research with undergrads

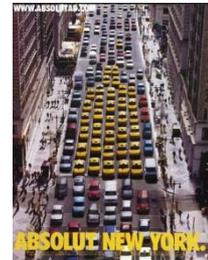
Persuasive images

- Images don't just passively live in our datasets or our phones
- They can be active participants and cause change
 - A photograph changed public perception of AIDS
 - A video prompted a change in NFL's domestic violence policy
 - A series of photos prompted President Carter to grant asylum to 200,000 refugees
 - "The general killed the Viet Cong; I killed the general with my camera." (Eddie Adams)



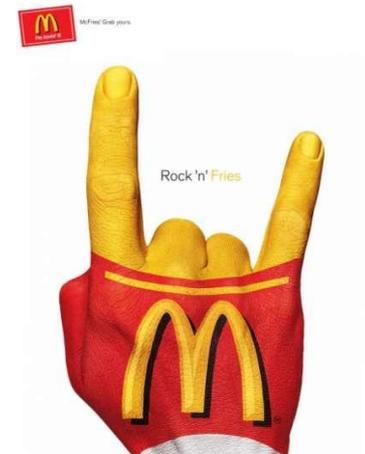
Persuasive images

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 - Ads helped 100,000 people quit smoking
 - Nike sales went from \$0.8bil (1988) to \$9.2bil (1998)
 - Absolut's share of the US vodka market went from 2.5% to about 25%
 - De Beers built the diamond ring industry
 - Old Spice's campaign gained 11 million views and 29,000 Facebook fans



Persuasive images

- We want to understand what ads tell us to do, and what rationale they provide for doing so
- First step to understanding what makes ads effective
- But this is challenging for many ads



- To enable progress, we developed a large richly annotated dataset: <http://cs.pitt.edu/~kovashka/ads>

Decoding image advertisements

- State-of-the-art vision systems are inadequate to describe the messages hidden behind purposefully designed advertisements.



Recognized Concepts

people commerce street
business stock city

Human Interpretation

Food at Burger King must taste really good since even competitor's employee secretly buys it.

Image Captioning

A man standing in front of a display of food.

A man standing in front of a display of a store.

Others working on understanding persuasion

- Jungseock Joo (UCLA)
- Jiebo Luo (University of Rochester)
- Shih-Fu Chang (Columbia University)

Computer vision with a cause (one example)

“VizWiz Grand Challenge: Answering Visual Questions from Blind People”, Gurari et al., CVPR 2018



Q: Does this foundation have any sunscreen?

A: yes



Q: What is this?

A: 10 euros



Q: What color is this?

A: green



Q: Please can you tell me what this item is?

A: butternut squash red pepper soup



Q: Is it sunny outside?

A: yes



Q: Is this air conditioner on fan, dehumidifier, or air conditioning?

A: air conditioning



Q: What type of pills are these?

A: unsuitable image



Q: What type of soup is this?

A: unsuitable image



Q: Who is this mail for?

A: unanswerable



Q: When is the expiration date?

A: unanswerable



Q: What is this?

A: unanswerable



Q: Can you please tell me what the oven temperature is set to?

A: unanswerable

Education and outreach

- Organizing workshops for the community

Calling all students:

- It's not that hard to do and it's fun
- It's a good networking opportunity
- It's service to the community

- Outreach beyond our community

Women in Computer Vision Workshop

Olga Russakovsky and Fei-Fei Li's AI4ALL Foundation

Fostering and mentoring students

- Doctoral Consortium
 - Merit-based mentoring event for senior PhD students
 - Lunch, one-on-one meetings with mentors in academy or industry, panel discussion
 - Financial support by NSF/industry
- Working with undergraduates
 - First experience was bad, so I decided to never do it again
 - Then I had a baby, had some time to think of concrete ideas, and agreed to work with three undergraduates
 - They were all absolutely amazing

Fostering and mentoring students

- Teaching undergraduates computer vision
 - The first time, I only connected with the good students
 - The third time, we were all cracking jokes every class
 - Many students were genuinely intrigued; excitement was visible and unrestrained
 - The key was assuming the students were right and reasonable every time; which they were, unlike before
 - *Good will breeds good will*
 - Undergrads often have an interesting perspective

My “How to be a good citizen of CVPR”

- Think about why our research matters
- Think about its impact on society
- Share datasets and involve community in your work
- Reach out to groups outside the community whose involvement and perspective we could benefit from
- Help foster graduate and undergraduate students
- Involve undergraduates in research and get them excited, they have a lot to contribute!