

Projects!!!!

Agenda

- Today
 - Project goals, milestones, advice
 - Overview of topics by the TAs and their research interests
- Thursday
 - No regular lecture
 - Instead, work on the proposal in class
 - TAs and I will be here to support and give feedback

Important dates

- Proposal — October 3 (5%)
- Milestone — October 31 (15%)
- Final writeup — December 2 (25%)
- Presentations — December 3-10 (5%)

Final project is 50% of the overall grade

Topics

Applications

- Pick a real-world problem in biology, engineering, physics, etc. and apply deep learning to it.
- Could involve collecting a dataset, formulating an ML approach, etc.

Models

- Build a new algorithm / model to tackle an existing problem.
- Could be more challenging as it requires familiarity with the area.

Both could lead to publishable results (e.g., NeurIPS D&B track)

What next: Project Proposal

Sound be ~400 words describing:

- Who are the 2-3 **members**? What will they do?
- What **problem** will you be investigating?
- What **literature** will you examine as context?
- What **data** will you use? Will you be collecting a new one?
- What **algorithm** will you use? If using an existing one, what is the plan and motivation for modifying them?
- What **evaluation metrics** will you use?
- A few **references** describing related work

Only one submission for the group. Don't forget to add your teammates to the group submission.

How to write a good paper

Slides credit: Jitendra Malik, UC Berkeley @ Good Citizen of CVPR workshop, 2018

https://deviparikh.com/citizenofcvpr/static/slides/malik_write_good_paper.pdf

How to write a paper

Don Geman's advice: A paper has four parts

1. Title
2. Abstract
3. Introduction
4. Rest of the paper

Spend equal time on all four of these!

On the title

- It should capture what is special about the paper.
- From the title you should have a guess of the content of the paper, and recalling the title should help recall the paper.
- If every other paper in the field could use the same title, it is a bad title
- Spend some time inventing terms; memorable and specific are best on all four of these!

Opening lines

- Way too many computer vision papers begin with “Object recognition is an important problem in vision”
- Compare with Literature

It is a truth universally acknowledged that a single man in possession of a good fortune must be in want of a wife.

It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of light, it was the season of darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going direct to Heaven, we were all going direct the other way.

As Gregor Samsa awoke one morning from uneasy dreams he found himself transformed in his bed into an enormous insect.

Lolita, light of my life, fire of my loins. My sin, my soul.

Call me Ishmael.

Happy families are all alike; every unhappy family is unhappy in its own way

He was an old man who fished alone in a skiff in the Gulf Stream and he had gone eighty-four days now without taking a fish

Introduction section

- The most important section of a paper. For me, once I have finished reading the introduction, I have formed an opinion of whether to accept or reject the paper
- Multiple styles possible
 1. Historical style
 2. What did you do (Fig. 1), How did you do it? (Fig. 2)

Figures, Tables

- If you pull out all the figures and tables and put them into a slide deck you should have a good talk ready
- The best way to write a paper is to first give a talk on it.