

# CS231N: Final Project Overview

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*(adapted from Chris Waites)*

# Agenda

- Project Expectations
  - Overview
  - FAQ: Does my project meet expectations?
- Picking a project idea
  - Sources of inspiration
  - Reading papers efficiently
- Project deliverables
  - Proposal, milestone, and final report
  - Due dates, expectations, logistics
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# Project Expectations

- Fairly open-ended, anything related to vision. Must include visual data.
- Potential Project Ideas
  - [https://docs.google.com/document/d/1Kcf8S1UVPo4TAcoJvn9d6uj\\_wl2Ah9wj/edit](https://docs.google.com/document/d/1Kcf8S1UVPo4TAcoJvn9d6uj_wl2Ah9wj/edit)
- Completed in groups of 1-3 people
  - Project expectations are higher for groups with more people
- Two Types of Projects
  - Applications: apply vision techniques to your particular domain or interest (e.g. medicine, physics, etc.)
  - Models: build a new model (algorithm) and apply it to tackle vision tasks. This track might be more challenging, and could lead to a piece of publishable work

# Project Expectations

The final report has the following structure:

- Title, Author(s)
- Abstract
- Related Work
- Methods
- Data Description
- Experiments and Results
- Conclusion
- Supplementary Material (optional)

# Project Expectations

## **Does my project meet expectations?**

- Rule of thumb: how much effort are you putting into your project?
- Strong projects might...
  - Propose a novel variant of a technique (which takes a lot of effort)
  - Adapts an existing technique to a totally new problem (which takes a lot of effort)
- Weaker projects might...
  - Spend several weeks collecting/cleaning data rather than testing hypotheses
  - Clone an existing repo and do minimal stitching to make it work for a Kaggle competition

# Project Expectations

## **This does not mean:**

- Your project has to be strictly novel to get a good grade (although, we encourage this!)
- You have to beat the state-of-the-art performance to get a good grade (you don't have to come up with the next best object detector to test an interesting hypothesis)

## **This does mean:**

- You need to put a significant effort into your investigation, and you may have to try many different approaches
- In your analysis, ask yourself:
  - Are you interpreting and understanding your results, or merely stating them?
  - Are you just plotting a loss curve, or are you evaluating the results of your approach from many different angles?

# Picking a Project Idea

## **Consideration of Interests**

- Do what is important or interesting to you, not what seems easiest.
- You will be far more motivated if you're invested in what you're doing
- What do you really care about? Healthcare? Sports? Ethics? You can probably find its intersection with computer vision

## **Practical Considerations**

1. Data: Is there existing data for this problem? Will I need to spend weeks collecting it myself?
2. Code & framework: Will I have to implement this myself, or is there an existing implementation.

# Picking a Project Idea: Sources of Inspiration

## Conferences:

- CVPR: IEEE Conference on Computer Vision and Pattern Recognition
- ICCV: International Conference on Computer Vision
- ECCV: European Conference on Computer Vision
- NeurIPS: Neural Information Processing Systems
- ICLR: International Conference on Learning Representations
- ICML: International Conference on Machine Learning

Note: Do not even begin to try to read through all of these papers, or even their titles. There are far too many. Use CMD+F to find papers with relevant keywords.



# Picking a Project Idea: Sources of Inspiration

Additional resources:

- Stanford Vision and Learning Lab (SVL) Publications
- Awesome Deep Vision
- Papers With Code
- Previous CS229 Projects

# Picking a Project Idea: Reading Papers

How to read papers efficiently

- Do not read a paper linearly on your first pass
- First, read the abstract (word for word) as well as the figures & captions
- Does the paper still seem relevant? If so, read the methods as well as the results
- Finally, read the entire paper linearly (if the additional detail seems useful)

Papers are not always the most efficient way to digest an idea. Also try looking for:

- Talks, videos, or blog posts on the topics
- Github repos, containing actual code for the idea

# Project Deliverables

## **Project Proposal** (Due Friday, 04/25)

- One paragraph (200-400) words describing:
  - Problem and motivation
  - Reading material
  - Data and collection process
  - General sense of your model / algorithm
  - Evaluation (qualitative and quantitative)

## **Project Milestone** (Due Friday, 05/16)

- 2-3 pages using the provided template
- Title, introduction, problem statement, technical approach, preliminary experimental results

## **Final Report** (Due Wednesday, 06/04)

- 6-8 pages using provided template
- Title, abstract, introduction, related work, data, methods, experiments, conclusion

## **Poster Session (in-person)** (On Wednesday, 06/11)

## **Poster PDF / Code (online)** (Due Wednesday, 06/11)

# Support: CA Areas of Specialty

## **Chaitanya Patel**

**TA role:** Head TA

**Research interests:** 3D vision, human perception, video

## **Kyle Sargent**

**TA role:** Assignment 2 lead

**Research interests:** 2D and 3D generative models

## **Tiange Xiang**

**TA role:** Midterm Exam Lead

**Research interests:** 3D generative models, 3D human stuff

## **Gabriela Aranguiz-Dias**

**TA role:** Cloud Credit Lead

**Research interests:** Synthetic data validation, metrics for agentic AI efficiency, emotional cognition in LLMs

## **Zhoujie Ding**

**TA role:** Ed Lead

**Research interests:** Trustworthy ML

## **Sabri Eyuboglu**

**TA role:** Final Grading Lead

**Research interests:** Machine learning systems, vision-language models

## **Yunfan Jiang**

**TA role:** Website Lead

**Research interests:** Robot learning, embodied AI, reinforcement learning

## **Emily Jin**

**TA role:** Section Lead

**Research interests:** visual reasoning, vision and language, representation learning

## **Matthew Jin**

**TA role:** Section Lead

**Research interests:** Efficient ML, ML systems

# Support: CA Areas of Specialty

## Jiaman Li

**TA role:** Student liaison/ OAE/Honor Code Lead

**Research interests:** 3D Human Motion Modeling, Humanoid Robot Learning

## Ryan Li

**TA role:** Assignment 3 Lead

**Research interests:** Large Language Models, Post Training, Preference Tuning, Agentic Applications

## Rahul Mysore Venkatesh

**TA role:** Cloud Credit Lead

**Research interests:** World modeling; 3D scene understanding; self-supervised segmentation; intuitive physics

## Fan-Yun Sun

**TA role:** Project Lead

**Research interests:** 3D scene generation and world modeling; embodied AI

## Iris Xia

**TA role:** Logistics Lead

**Research interests:** ML for Sustainability, Remote Sensing, Satellite AI, Foundational Models

## Serena Zhang

**TA role:** Midterm Exam Lead

**Research interests:** medical imaging and vision-language models, healthcare/biology AI

## Minji Kang

**TA role:**

**Research interests:** AI + biology, Interpretability of deep learning

## Shutong Zhang

**TA role:**

**Research interests:** 3D vision, Manipulation

## Stephen Tian

**TA role:**

**Research interests:** Robot learning, 3D vision, reinforcement learning

# Support: CA Areas of Specialty

## Aditesh Kumar

**TA role:** Midterm Lead

**Research interests:** Scene representations,  
safe reinforcement learning

## Wenlong Huang

**TA role:** Project Lead

**Research interests:** Robotics

## Cristóbal Eyzaguirre

**TA role:**

**Research interests:** Vision, Video,  
Multimodality

## Questions?

**Q:** Can I change my project after the proposal, before the milestone?

**A:** Yes, the proposal is to make sure you have a plausible project direction. If you need to change project directions, we understand. Just check with a CA in OH.

**Q:** Can I change my project after the milestone?

**A:** In general, we do not encourage this. At this point in the course, there will be little time to put together a sufficient project.

**Q:** How many cloud compute credits will I get?

**A:** Each student will receive 50 USD in GCP credits.