CS131 Final Project Guidelines

Winter 2023

For your final project in CS131, you have the opportunity to think about how the principles of computer vision might intersect with your interests or deepen your understanding of a topic that fascinated you during the course. This project is open-ended to allow for creativity and exploration. You might consider applying computer vision techniques to a hobby or passion project, such as developing a system to identify species in nature photographs, enhancing sports analytics through motion tracking, or creating an augmented reality app that interacts with specific objects in your environment. Alternatively, you could choose to dive deeper into a concept introduced in the course, such as K-means clustering, 3D reconstruction from 2D images, etc.

To ensure that your project idea is both novel and manageable within the scope of the course, it is strongly recommended that you come to office hours early before submitting your proposal. This will allow you to discuss the novelty and workload of your proposed project and refine your idea before final submission.

Project Components

Proposal: (10%)

- Format: 1 page in PDF format, submitted via Gradescope.
- Content: Propose your final project idea after performing some initial research.
- Rubric:
    - Clarity of Problem Statement and Originality (3%): Originality and creativity in the chosen problem with clear and concise descriptions.
    - Proposed Methodology (3%): Coherence and clarity in the proposed approach. Appropriateness of the methodology for the problem.
    - Feasibility (2%): A realistic and achievable timeline with objectives.
    - Organization and Writing Quality (2%): Logical flow and structure of the proposal.
    - Sign up for a TA mentor through this link (sign in with your Stanford Google account)

Midterm Status Progress Report: (10%)

- Format: 2 page PDF, submitted on Gradescope.
- Content: Summarize your achievements and any deviations from the original proposal. Showcase an intermediate result through visualization. Provide an updated timeline and objectives.

Presentation at Demo Day: (30%)

- Format: Oral presentation with visual aids (e.g., slides, demos). Submit your final demo day presentation slides on Gradescope.
- Duration: 4 minutes
- Content: Overview of the project, methodology, results, and learnings.
- Rubrics:
  - Clarity of Problem Statement and Proposed Methodology (7%)
  - Clarity of Results, Analysis, and Discussion (7%)
  - Quality of Presentation (6%)

Final Report: (50%)

- Format: 4 pages, PDF format using the CVPR template.
- Structure:
  - Introduction: Motivation, significance, and challenges of the chosen problem.
  - Related Work: Discuss related research and differentiate your approach.
  - Methodology: Detail your methods, algorithms, and models used.
  - Results: Present your findings with quantitative and qualitative analysis.
  - Conclusion: Summarize your findings, their implications, and potential future work.
  - Individual Contributions: For group projects, clearly state each member's contributions (what code each one wrote, experiments run, etc).
- Rubrics:
  - Introduction and Motivation (5%)
  - Depth of Research and Related Work (10%)
  - Methodology and Technical Rigor (10%)
  - Results, Analysis, and Discussion (20%)
  - Writing Quality and Organization (5%)

Notes:

- You may choose to work individually or in a group **(up to 3 members)**.
- No late dates can be applied to the Demo Day Slides and Final Report.
- Please have only one group member submit the proposal and select the other group members during submission.
- Group members must contribute equally. For teams with 3 people, the project will be graded with higher expectations and should demonstrate clear contributions from all 3 students.
- Please email your TA mentor directly for project-specific questions and guidance. For general questions related to computer vision, please use Ed, come to TA office hours, or book office hours with Professors Niebles and Gaidon.

- You are free to use any programming language and libraries. Proper citations and acknowledgments are required.
- **If you have a time conflict for the 3/21 Demo Day, please email Johnny (cjohnny@stanford.edu) by 2/23 and submit a recorded presentation by 3/21 11:59PM**

Deadlines:

1. Project Proposal Due & Final request to demo through recordings: **2/23 11:59PM**
2. Midterm Status Update: **3/8 11:59PM**
3. Final Demo Day Presentation Slides Due: **3/20 11:59PM**
4. Final Demo Day: **3/21 12:15-3:15PM** (Location will be announced on Ed)
5. Final Project Report Due: **3/21 11:59PM**