

# Final Project Proposal

## Definitions

**Team name:** *Starter*

**Team members:** *Enmin Zhou*

*Note:* Once one person uploads the report to Gradescope, please add all other team members to the submission within the Gradescope interface (top right on your submission).

If you need to find team members, please use the 'Search for Teammates!' top-level post on Piazza—pitch an idea!

## Project

Please write a one-two page document including:

- What are the skills of the team members? Conduct a skill assessment!
- What is your project idea?
- What data will you use?
- What software/hardware will you use?
- Who will do what?
- How will you know whether you have made progress? What will you measure?
- What technical problems do you foresee or have?
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- What is the socio-historical context that this project lives in? (2-3 sentences)
- Who are the stakeholders for this project? (3-4 sentences)
- What are the benefits of a technology such as this? (2-3 sentences)
- How might a bad actor misuse this technology and who would it harm? (2-3 sentences)
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- Is there anything that we can do to help? E.G., resources, equipment.

**My answers for above questions**

- Python, C++, Unity, knowledge about deep learning and machine learning.
- I decide to implement a hand gesture recognition model that can recognize human hand gestures from camera input. In the final version, the model should be deployed on the android platform with accurate predictions printed out on screen within a Unity app.
- For data, I decide to collect some real hand data. I will also try to find some online hand images with labeled gestures.
- VS code, Unity, Google Cloud Platform, Google Colab.
- I will be responsible for all hand-gesture recognition model implementations in this project.
- I will try to compare different existing hand recognition model for effectiveness in circumstance where occlusion happens.
- 1. Hand might be occluded by objects in some circumstances and making accurate predictions in this situation can be hard. 2. how to merge my model in to usage on phones and still have low latency.
- We have many hand recognition and gesture/action prediction model, but many of them cannot be easily applied to an app or used on a mobile device. I want my model to be easily used on phones.
- Enmin Zhou, HCI Lab.
- A technology like this can help to recognize 3d hand positions and shapes which will benefit VR and AR in the future. Maybe remote medical surgery is possible if accurate enough!
- A misuse of this technology may cause privacy leakage because people use hands to deal with many private events.
- I will probably need some instructions from Professor Srinath Sridhar.