

VISION STATEMENT

Pretty Lil Leetcoders
LogMeIn
UCSB Capstone '18-'19

PROJECT TITLE

LogMyMotion

TEAM

Position	Name	Email
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OVERVIEW

The goal of this project is to use new and advanced machine learning technologies to create a platform that will be able to detect proper form when performing certain exercises, such as squats, by doing the following:

- Determining which exercise is being performed
- Recognizing certain cues that dictate proper form, and providing feedback on those various cues to the user
- Analyzing breathing patterns through headphone microphone

PROBLEM

Having proper form when exercising is crucial, as it ensures that you're getting the most out of the exercise and that you're preventing injuries. In order to get proper training, a beginner would have to pay a personal trainer (requiring appointments set at specific times) and subject themselves to criticism, which often makes beginners very uncomfortable. Because of this, beginners often don't seek this training. Instead, many choose to exercise in the privacy of their homes by themselves with no one there to give them feedback, making them prone to injury. We seek to mitigate this problem by creating an application that will be able to provide real-time feedback on the user's exercise form and train him/her to become a better athlete. Since a computer can be found in almost every home, this will provide many with access to their own personal trainer with zero hassle and embarrassment.

MILESTONES

The MVP for this project is going to be a web application that will analyze uploaded video footage and provide feedback about the exercise performed in the video.

Goals:

- A web interface
- Pass uploaded video/audio to server
- Create a dataset to train model on proper exercise form
- User accounts and social media integration

Stretch Goals:

- Provide feedback on more than one exercise
- Analyze video and provide text feedback in real-time
- Provide AI-voice feedback and suggestions in real-time

STRATEGY

To reach our milestones, we will implement and follow the following plan:

- Daily Scrum meetings
- Weekly on-site meetings with mentors at LogMeIn
- Online team collaboration using Discord
- Github version control
- Trello to track progress
- Demos at the end of each sprint

To develop LogMyMotion, we will use a variety of the following:

- **Platform Technologies:** Google Vision, Azure Face, Azure Speaker Recognition, Amazon Rekognition
- **Machine Learning:** Google Datalab, Microsoft ML Studio, Amazon ML, TensorFlow, CNTK, SciKit, PyTorch, Python, Jupyter, Pandas
- **Client:** ReactJS, Google Firebase, MongoDB, Express
- **Server:** Node.js, Microservices