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EE/CprE/SE 491 WEEKLY REPORT 02

Date Range: 1/24/2023 - 2/5/2023

Project title: Artwork Super-resolution Scanning Application

Client &/Advisor: Dr. Thomas Daniels

Team Members: Isaac Plambeck, Reece Dodge, Samuel Schaphorst, and Garrett Powell

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Weekly Summary

This week, we had our first client/advisor meeting where we were finally able to meet Dr Daniels. He gave us a more in depth description of what he expects from us, as well as insight into the many nuances of image processing. We are beginning to form roles and identify the most appropriate way to fill them based on our strong suits.

Past Week Accomplishments

- As a Group
    - Talked extensively about the fundamental approach we're taking to solve the problem prescribed by our client (Dr. Daniels)
    - Identified client's primary target user group
        - Artists wishing to produce high-quality large-scale digital versions of their physical artwork
- Isaac Plambeck
    - Research on Open CV and Python
    - Meeting with Dr. Daniels
    - Looking into Design Ideas for the application
- Reece Dodge
    - Researched lens distortion
    - Researched image stitching
- Samuel Schaphorst
    - Researching and learning how to use python
    - Met with Dr Daniels and got more insight on our project
    - Organized a weekly meeting time with Dr Daniels
- Garrett Powell
    - Basic research on possible digital signal processing methods.
    - Meeting with Dr. Daniels.

Individual Contributions

NAME	Individual Contributions	Hours this week	Hours cumulative
Isaac Plambeck	Application Research	1	3
Reece Dodge	Basic Research	1	3
Samuel Schaphorst	Reached out to Dr Daniels and arranged inaugural meeting, research in python	1	3
Garrett Powell	Basic Research	1	3

Plans for the Upcoming Week

- Group:
    - Form more concrete roles and fill them accordingly
    - Meet with Dr. Daniels early in the week to continue brainstorming and picking a philosophical approach to solving the problem
    - Form a concrete problem statement
    - Discuss in depth the feasibility of image stitching
- Isaac Plambeck:
    - Learn more about Open CV and Python
    - Start a basic application template
- Reece Dodge:
    - Continue researching the possibility of writing image-stitching software
    - Research current solutions to image stitching
    - Identify whether it'd be best to account for image distortion before or after initial image collection
- Samuel Schaphorst:
    - Become more familiar with Python
    - Figure out the most convenient approach to creating this software
- Garrett Powell:
    - Begin learning Python, focusing on digital signal processing applications.

Summary of Weekly Advisor Meeting

The most important product of our advisor meeting was the identification of our target user group. Dr. Daniels thoroughly explained to us his thought process when creating the proposal and walked us through the approaches he's taken in the past to solve the problem. From a less-theoretical standpoint, he gave us valuable suggestions for how to approach software development. More

specifically: we'll likely be using Python, OpenCV, and other open-source image processing tools/technologies.