Math Clinic Spring 2024 GUI

Paul Yeon, Dow Draper, Maxwell Schreyer

Presented by Paul Yeon

What We do

- Goal:
 - o Improve upon the Graphic User Interface created by previous teams
- Achieved:
 - New graphical style
 - New Settings layout
 - Partial Raspberry Pi integration
- The challenges we faced
 - Communication, package and software background not being as flexible as initially expected, stardist errors.

GUI Overview

- GUI stands for Graphic User Interface.
- Our GUI takes the models from the Frog egg and Oyster Team and creates a user-friendly interface to use the models on live data for predictions and eventually classification.
- The GUI also includes many useful features such as exporting the data to excel files and setting management of the GUI.
- New Features are created based on team input and user feedback, and streamlined formatting.
- We prioritized user flexibility and user-friendly design for the GUI

Code Overview

Our code base mostly consists of Python and JSON. TKinter and Stardist libraries are also employed.

Main process runs through Pages.py which initializes the Mainframe. All other windows are initialized whenever the relevant button is pressed. Background operations manage settings, Excel Layout, Oyster Page operations, and Excel exporting

Settings and Excel Editing rely on JSON files to save and load settings from previous runs into the program.

Feature 1: New Graphical Style and Layout

Customizable color schemes are available in the settings, with the new default being easier to parse.

Additional buttons have been added

Choosing running options is a lot easier

Changes have been made to make the pages more compatible with Raspberry Pi

Before and After

• Before

oussemple mergin		Sample Weight
1		
Filer	name: 01.Sample124	_1.jpeg
		Protost Danta 49
S Part Child		
· · ·	7	The second secon
La Chan - and		
the second		
and the second s	Number Predicted: 69	
	Number Predicted: 69 Prev Next	

• After



Feature 2: Raspberry Pi Prototyping

This interface pairs well with a hardware implementation like a Raspberry Pi device and touchscreen.

This way, users can take photos with a handheld device and quickly upload them to the application to begin processing.

We have made significant strides and a device for the purpose of implementing the project on Raspberry Pi hardware.

Raspberry Pi Pictures



New Feature 3: New Settings Page Layout

• The settings page has been made into a dropdown layout, improving organization and readability

		100		×
Basic File Save Progra	m			
Click buttons	to toggle setting	js		
Automat	ic Export To Excel		Off	
Automatic Clear	Last Prediction On Predict		Off	
Clear Prediction	s When Clearing Images		On	
Save In	ages To Output		Off	
Reset To	Default Settings			
-	Settings		-	
	and the second sec	Status		
Blefaults Autoresport Excel File New Excel for predictions New Excel Went classing Autorsave Inages		ective inactive ective		
EI SCHLE		- and the second		
ELight Theses		10007104		_
Eligit. Teame consultant consultant consultant consultant consultant consultant consultant mitty minty minty minty minty saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone simple. saidtone si saidtone simple. saidtone simple. saidtone simple. saidtone		Institut inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive inactive ina		

Future

- Currently adding additional comments and documentation to the code and adjusting the README as the project evolves.
- Interested in adding more customizability to the export functions.
- Fixing tooltips when the cursors hangs over a button.
- More quality-of-life and graphics changes are incoming, as well as completing the necessary changes and builds to improve the GUI's performance with the Raspberry Pi.
- We may be interested in adding features for calculations or measuring changes in the samples over time

Acknowledgements

LSU's Math Department

Dr. Wolenski and Dr. Drenska

Gowri, Shalini, and Christian Ennis

Dr. Yue Liu and other AGGRC members

Dr. Bodenstein

Dr. Koch

Oyster Team

Frog Egg Team

Fall GUI Team

Dr. Carl