Brigham Young University

AUVSI Capstone Team (Team 45)

GUI API

ID	Rev.	Date	Description	Author	Checked By
IM-002	1.0	12-07-2018	Initial release	Derek Knowles & Brandon McBride	Connor Olsen

1 Introduction

The purpose of this artifact is to document the code for the graphical user interface used to crop, classify, and submit target images to the judges server during the AUVSI competiton. This document lists a brief description for each function and the functions input and output parameters.

2 Module client_gui

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Prereqs: python 3 sudo apt install python3-tk pip3 install Pillow, opencv-python, ttkthemes

2.1 Class GuiClass

tkinter.Frame
└ **client_gui.GuiClass**

Graphical User Interface for 2019 AUVSI competition Tab 0: Setting for setting up the server_error Tab 1: Pull raw images and submit cropped images Tab 2: Pull cropped iamges and submit classification for images Tab 3: Display results for manual and autonomous classification

2.1.1 Methods

__init__(*self*, *master*=`None`)

initialization for Gui Class

Parameters

`tk.Frame:` nothing

(type=nothing)

Return Value

None

(type=None)

get_image(*self*, *path*)

Reads in an image from folder on computer

Parameters

`path:` the file path to where the image is located

(type=file path)

Return Value

Numpy array of selected image

(type=Numpy image array)

np2im(*self*, *image*)

Converts from numpy array to PIL image

Parameters

`image:` Numpy array of selected image

(type=Numpy image array)

Return Value

PIL image of numpy array

(type=PIL image)

im2tk(*self*, *image*)

Converts from PIL image to TK image

Parameters

`image:` PIL image of numpy array

(type=PIL image)

Return Value

TK image of PIL image

(type=TK image)

mouse_click(*self*, *event*)

Saves pixel location of where on the image the mouse clicks

Parameters

`event:` mouse event

(type=event)

Return Value

None

(type=None)

mouse_move(*self*, *event*)

Gets pixel location of where the mouse is moving and show rectangle for crop preview

Parameters

`event:` mouse event

(type=event)

Return Value

None

(type=None)

mouse_release(*self*, *event*)

Saves pixel location of where the mouse clicks and creates crop preview

Parameters

`event:` mouse event

(type=event)

Return Value

None

(type=None)

close_window(*self*, *event*)

Closes gui safely

Parameters

`event:` ESC event

(type=event)

Return Value

None

(type=None)

resizeEventTab0(*self*, *event*=`None`)

Resizes picture on Tab0

Parameters

`event:` resize window event

(type=event)

Return Value

None

(type=None)

resizeEventTab1(*self*, *event*=`None`)

Resizes pictures on Tab1

Parameters

`event:` resize window event

(type=event)

Return Value

None

(type=None)

resizeEventTab2(*self*, *event*=`None`)

Resizes picture on Tab2

Parameters

`event:` resize window event

(type=event)

Return Value

None

(type=None)

resizeIm(*self*, *image*, *image_width*, *image_height*, *width_restrict*, *height_restrict*)

Resizes PIL image according to given bounds

Parameters

`image:` PIL image that you want to crop

(type=PIL image)

`image_width:` the original image width in pixels

(type=integer)

`image_height:` the original image height in pixels

(type=integer)

`width_restrict:` the width in pixels of restricted area

(type=integer)

`height_restrict:` the height in pixels of restricted area

(type=integer)

Return Value

Resized PIL image

(type=PIL image)

cropImage(*self*, *x0*, *y0*, *x1*, *y1*)

Crops raw image

Parameters

`x0:` pixel x location of first click

(type=integer)

`y0:` pixel y location of first click

(type=integer)

`x1:` pixel x location of second click

(type=integer)

`y1:` pixel y location of second click

(type=integer)

Return Value

None

(type=None)

undoCrop(*self*, *event*=`None`)

Undoes crop and resets the raw image

Parameters

`event:` Ctrl + Z event

(type=event)

Return Value

None

(type=None)

nextRaw(*self*, *event*)

Requests and displays next raw image

Parameters

`event:` Right arrow event

(type=event)

Return Value

None

(type=None)

previousRaw(*self*, *event*)

Requests and displays previous raw image

Parameters

`event:` Left arrow event

(type=event)

Return Value

None

(type=None)

submitCropped(*self*, *event*=`None`)

Submits cropped image to server

Parameters

`event:` Enter press or button press event

(type=event)

Return Value

None

(type=None)

nextCropped(*self*, *event*)

Requests and displays next cropped image

Parameters

`event:` Right arrow event

(type=event)

Return Value

None

(type=None)

prevCropped(*self*, *event*)

Requests and displays previous cropped image

Parameters

`event:` Left arrow event

(type=event)

Return Value

None

(type=None)

submitClassification(*self*, *event*=`None`)

Submits classification of image to server

Parameters

`event:` Enter press event

(type=event)

Return Value

None

(type=None)

tabChanged(*self*, *event*)

Performs the correct keybindings when you move to a new tab of the gui

Parameters

`event:` Tab changed event

(type=event)

Return Value

None

(type=None)

updateSettings(*self*, *event*=`None`)

Attempts to connect to server when settings are changed

Parameters

`event:` Enter press or button press event

(type=event)

Return Value

None

(type=None)

pingServer(*self*)

Checks if server is correctly connected

Return Value

None

(type=None)

disableEmergentDescription(*self*, **args*)

Disables emergent discription unless emergent target selected

Return Value

None

(type=None)