LAPORAN

PENGOLAHAN CITRA DIGITAL

APLIKASI PENGOLAHAN CITRA DENGAN MATLAB

Anggota Kelompok:

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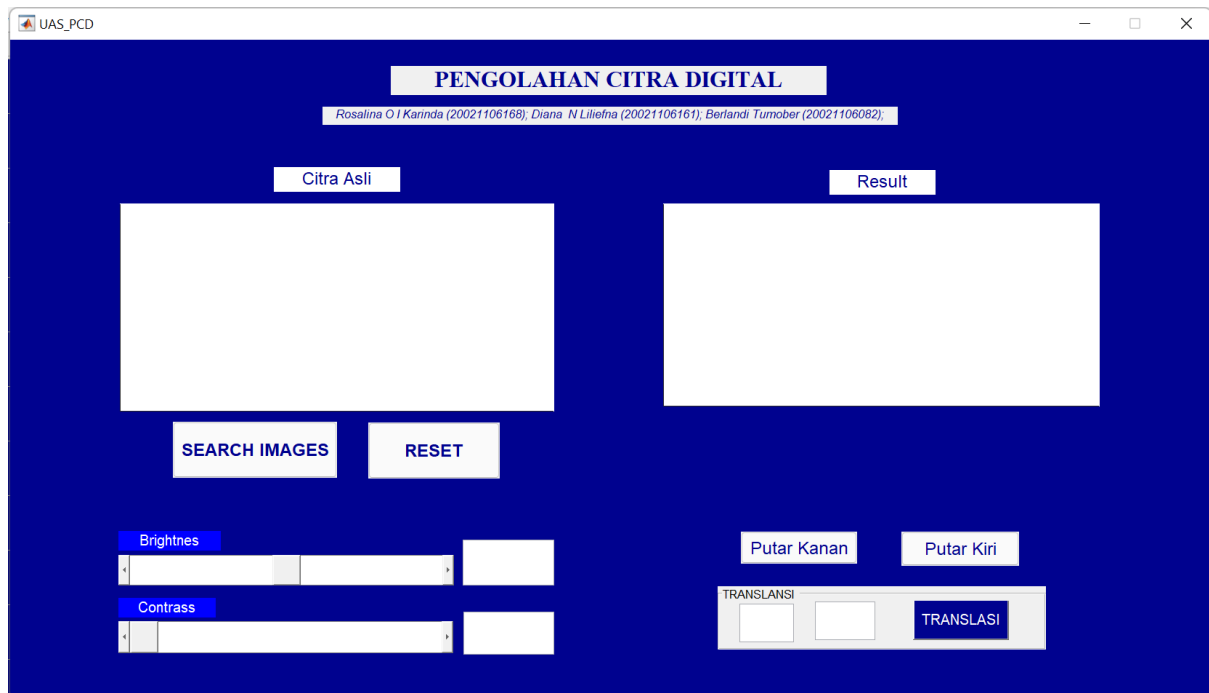
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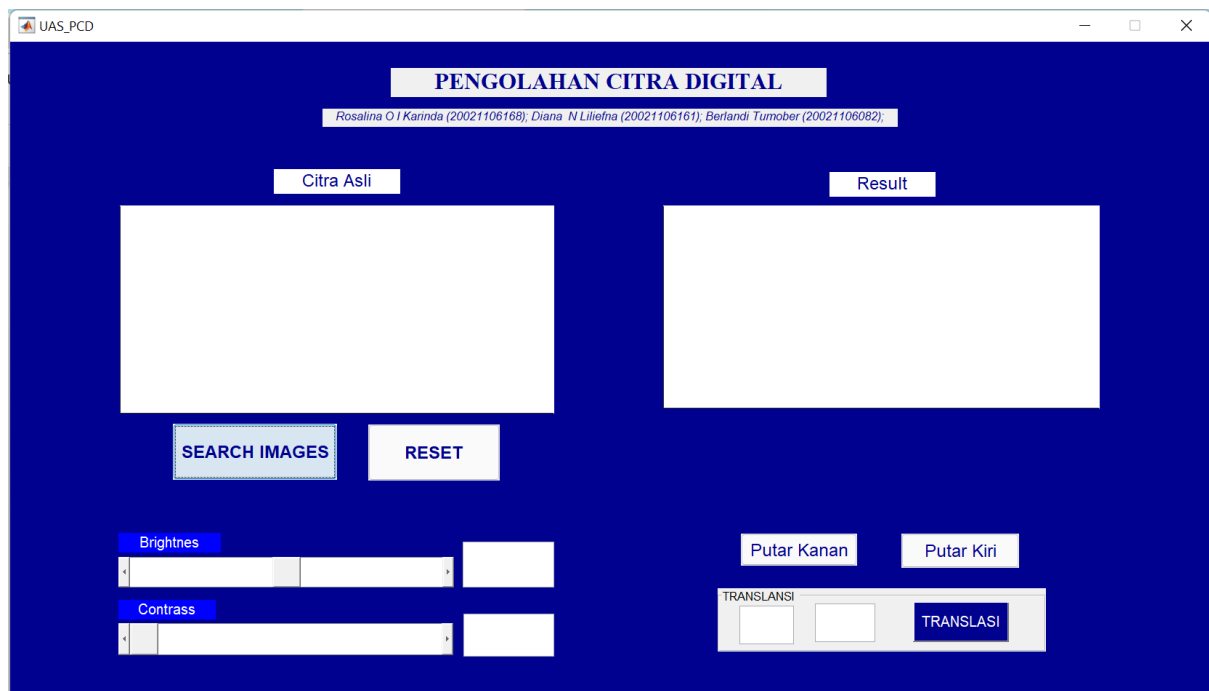
MANADO 2022

Dokumentasi Program

1. Tampilan awal program

Gambar 1.1 Tampilan awal

2. Untuk mengunggah foto, klik search images dan kemudian muncul tampilan untuk memilih foto.

Gambar 2.1. Search Images

3. Tampilan program ketika user sudah memilih foto yang akan digunakan
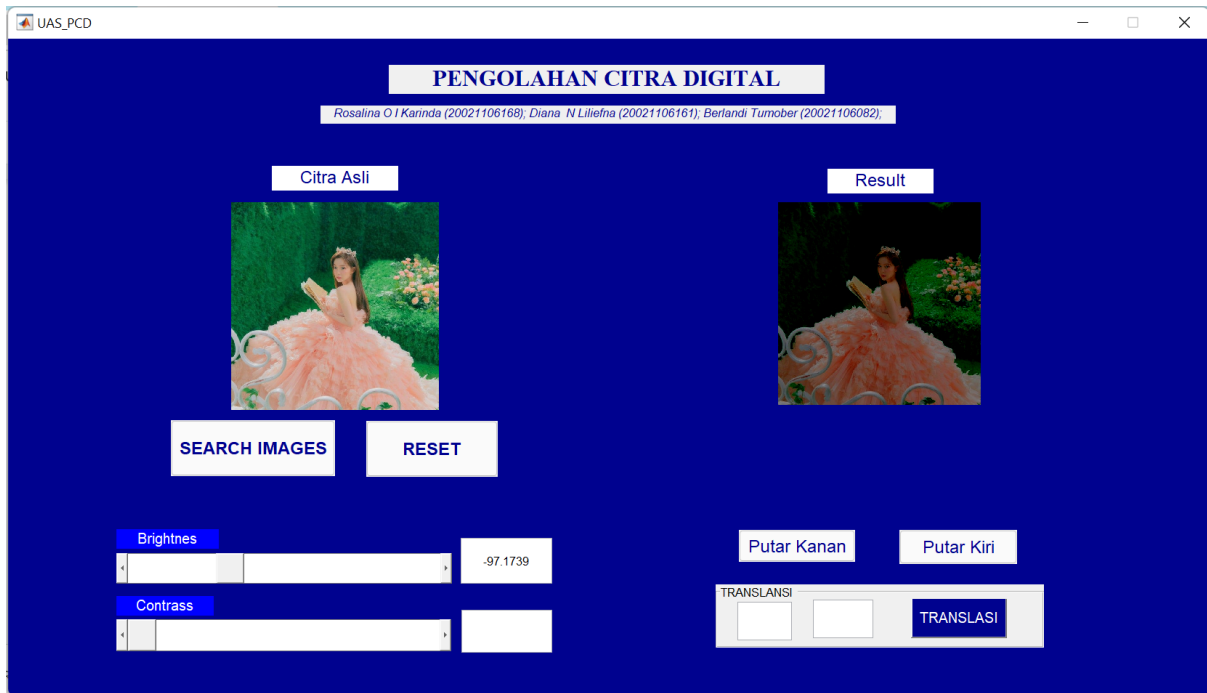

Gambar 3.1. Tampilan Images telah diunggah

4. Tampilan program saat menggunakan fitur Brightness.

Gambar 4.1. Brightness ditambah

Gambar 4.2. Brightness dikurangi

5. Tampilan program saat menggunakan fitur ROTASI

Gambar 5.1. Rotasi ke kanan

Gambar 5.2. Rotasi ke kiri

6. Tampilan Program saat menggunakan fitur translasi.

Gambar 6.1. Translasi

Kode Program (MATLAB)

```matlab
function varargout = UAS_PCD(varargin)
% UAS_PCD MATLAB code for UAS_PCD.fig
%      UAS_PCD, by itself, creates a new UAS_PCD or raises the
existing
%      singleton*.
%
%      H = UAS_PCD returns the handle to a new UAS_PCD or the handle
to
%      the existing singleton*.
%
%      UAS_PCD('CALLBAguCK',hObject,eventData,handles,...) calls the
local
%      function named CALLBACK in UAS_PCD.M with the given input
arguments.
%
%      UAS_PCD('Property','Value',...) creates a new UAS_PCD or
raises the
%      existing singleton*.  Starting from the left, property value
pairs are
%      applied to the GUI before UAS_PCD_OpeningFcn gets called.  An
%      unrecognized property name or invalid value makes property
application
%      stop.  All inputs are passed to UAS_PCD_OpeningFcn via
varargin.
%
%      *See GUI Options on GUIDE's Tools menu.  Choose "GUI allows
only one
%      instance to run (singleton)".
%
% See also: GUIDE, GUIDATA, GUIHANDLES
% Edit the above text to modify the response to help UAS_PCD
% Last Modified by GUIDE v2.5 07-Jun-2022 02:39:52
% Begin initialization code - DO NOT EDIT
gui_Singleton = 1;
gui_State = struct('gui_Name',       mfilename, ...
                   'gui_Singleton',  gui_Singleton, ...
                   'gui_OpeningFcn', @UAS_PCD_OpeningFcn, ...
                   'gui_OutputFcn',  @UAS_PCD_OutputFcn, ...
                   'gui_LayoutFcn',  [] , ...
                   'gui_Callback',   []);
if nargin && ischar(varargin{1})
   gui_State.gui_Callback = str2func(varargin{1});
end
if nargout
   [varargout{1:nargout}] = gui_mainfcn(gui_State, varargin{:});
else
   gui_mainfcn(gui_State, varargin{:});
end
% End initialization code - DO NOT EDIT
% --- Executes just before UAS_PCD is made visible.
function UAS_PCD_OpeningFcn(hObject, eventdata, handles, varargin)
```

```matlab
% This function has no output args, see OutputFcn.
% hObject    handle to figure
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% varargin   command line arguments to UAS_PCD (see VARARGIN)
% Choose default command line output for UAS_PCD
handles.output = hObject;
% Update handles structure
guidata(hObject, handles);
% UIWAIT makes UAS_PCD wait for user response (see UIRESUME)
% uiwait(handles.figure1);
% --- Outputs from this function are returned to the command line.
function varargout = UAS_PCD_OutputFcn(hObject, eventdata, handles)
% varargout  cell array for returning output args (see VARARGOUT);
% hObject    handle to figure
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% Get default command line output from handles structure
varargout{1} = handles.output;
% --- Executes on button press in seacrh.
function seacrh_Callback(hObject, eventdata, handles)
% hObject    handle to seacrh (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global I;
global G;
[nama , alamat] = uigetfile({'*.jpg';'*.bmp';'*.png';'*.tif'},'Browse
Image');
I = imread([alamat,nama]);
handles.image=I;
guidata(hObject, handles);
axes(handles.axes1);
imshow(I,[]);
G=I;
% --- Executes on button press in reset.
function reset_Callback(hObject, eventdata, handles)
% hObject    handle to reset (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global G;
global I;
citra=handles.image;
axes(handles.axes2);
cla;
imshow(citra);
axes(handles.axes4);
cla reset;
G=I;
% --- Executes on slider movement.
function Contrass_Callback(hObject, eventdata, handles)
% hObject    handle to Contrass (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
```

```matlab
% Hints: get(hObject,'Value') returns position of slider
%        get(hObject,'Min') and get(hObject,'Max') to determine range
of slider
global G;
valueKon=get(handles.Contrass,'Value');
valueCe=get(handles.brightness,'Value');
set(handles.txtC,'String',valueKon);
citra=handles.image;
cerah=citra+valueCe;
kontras=valueKon*cerah;
G=kontras;
axes(handles.axes2);
guidata(hObject, handles);
imshow(G,[]);
% --- Executes during object creation, after setting all properties.
function Contrass_CreateFcn(hObject, ~, handles)
% hObject    handle to Contrass (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called
% Hint: slider controls usually have a light gray background.
if isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor',[.9 .9 .9]);
end
% --- Executes on slider movement.
function brightness_Callback(hObject, ~, handles)
% hObject    handle to brightness (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global G;
valueK=get(handles.Contrass,'Value');
valueC=get(handles.brightness,'Value');
set(handles.txtB,'String',valueC);
citra=handles.image;
kontras=valueK*(citra+valueC);
cerah=citra+valueC;
G=cerah;
axes(handles.axes2);
guidata(hObject, handles);
imshow(G,[]);
axes(handles.axes4);
histogramRGB(G);
% --- Executes during object creation, after setting all properties.
function brightness_CreateFcn(hObject, ~, ~)
% hObject    handle to brightness (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called
% Hint: slider controls usually have a light gray background.
if isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor',[.9 .9 .9]);
```

```matlab
end
% --- Executes during object creation, after setting all properties.
function popupmenu2_CreateFcn(hObject, eventdata, handles)
% hObject    handle to popupmenu2 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called
% Hint: popupmenu controls usually have a white background on
Windows.
%        See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end
function txtC_Callback(hObject, eventdata, handles)
% hObject    handle to txtC (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% Hints: get(hObject,'String') returns contents of txtC as text
%        str2double(get(hObject,'String')) returns contents of txtC
as a double
% --- Executes during object creation, after setting all properties.
function txtC_CreateFcn(hObject, eventdata, handles)
% hObject    handle to txtC (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called
% Hint: edit controls usually have a white background on Windows.
%        See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end
function txtB_Callback(~, eventdata, handles)
% hObject    handle to txtB (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% Hints: get(hObject,'String') returns contents of txtB as text
%        str2double(get(hObject,'String')) returns contents of txtB
as a double
% --- Executes during object creation, after setting all properties.
function txtB_CreateFcn(hObject, eventdata, handles)
% hObject    handle to txtB (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called
% Hint: edit controls usually have a white background on Windows.
%        See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end
function txtS_Callback(hObject, eventdata, handles)
```

```matlab
% hObject    handle to txtS (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% Hints: get(hObject,'String') returns contents of txtS as text
%        str2double(get(hObject,'String')) returns contents of txtS
as a double
% --- Executes during object creation, after setting all properties.
function txtS_CreateFcn(hObject, eventdata, handles)
% hObject    handle to txtS (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called
% Hint: edit controls usually have a white background on Windows.
%       See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
   set(hObject,'BackgroundColor','white');
end
% --- Executes on button press in translasi1.
function translasi1_Callback(hObject, eventdata, handles)
% hObject    handle to translasi1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global I;
[tinggi, lebar] = size(I);
 G = zeros(size(I));
 G = uint8(G);
 gx = str2num(get(handles.x,'string'));
 gy = str2num(get(handles.y,'string'));
 for y=1:tinggi
   for x=1:lebar
     if(y+gy >= 1) && (y+gy <= tinggi) && ...
       (x+gx >= 1) && (x+gx <= lebar)
       G(y+gy,x+gx) = I(y,x);
         end
   end
 end
axes(handles.axes2);
imshow(G);
function x_Callback(hObject, eventdata, handles)
% hObject    handle to x (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% Hints: get(hObject,'String') returns contents of x as text
%        str2double(get(hObject,'String')) returns contents of x as a
double
% --- Executes during object creation, after setting all properties.
function x_CreateFcn(hObject, eventdata, handles)
% hObject    handle to x (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called
% Hint: edit controls usually have a white background on Windows.
```

```matlab
%       See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end
function y_Callback(hObject, eventdata, handles)
% hObject    handle to y (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% Hints: get(hObject,'String') returns contents of y as text
%        str2double(get(hObject,'String')) returns contents of y as a
double
% --- Executes during object creation, after setting all properties.
function y_CreateFcn(hObject, eventdata, handles)
% hObject    handle to y (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called
% Hint: edit controls usually have a white background on Windows.
%       See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end
% --- Executes on button press in putarkiri.
function putarkiri_Callback(hObject, eventdata, handles)
% hObject    handle to putarkiri (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
p = handles.image;
r = rot90(p(:,:,1),1);
g = rot90(p(:,:,2),1);
b = rot90(p(:,:,3),1);
putar = cat(3,r,g,b);
handles.image = putar;
guidata(hObject, handles);
axes(handles.axes2);
imshow(putar);
% --- Executes on button press in putarkanan.
function putarkanan_Callback(hObject, eventdata, handles)
% hObject    handle to putarkanan (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
p = handles.image;
r = rot90(p(:,:,1),3);
g = rot90(p(:,:,2),3);
b = rot90(p(:,:,3),3);
putar = cat(3,r,g,b);
handles.image = putar;
guidata(hObject, handles);
axes(handles.axes2);
imshow(putar);
```