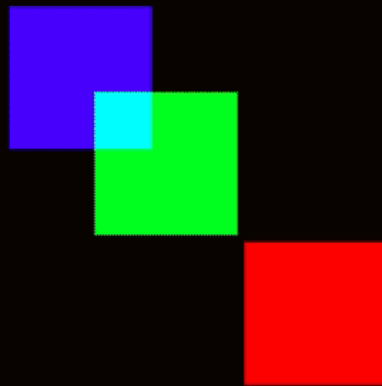


# Geração e Manipulação de Imagens 3D



**Prof. Dr. Diego Renan Bruno**

Education Tech Lead na DIO

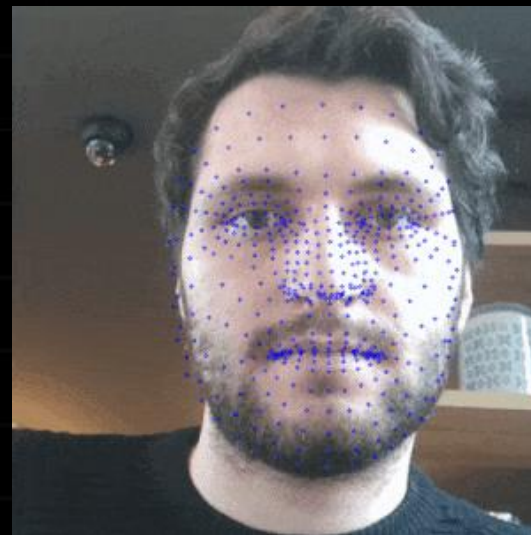
Doutor em Robótica e *Machine Learning* pelo ICMC-USP



OpenCV

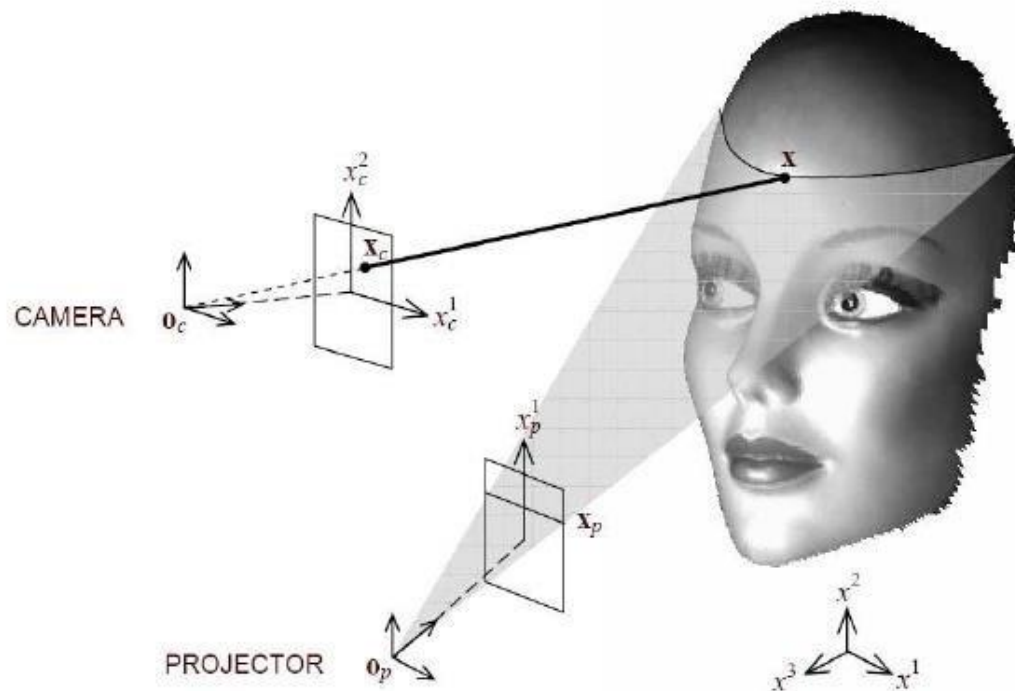
# Geração de imagens 3D

Captura da imagem sem profundidade:



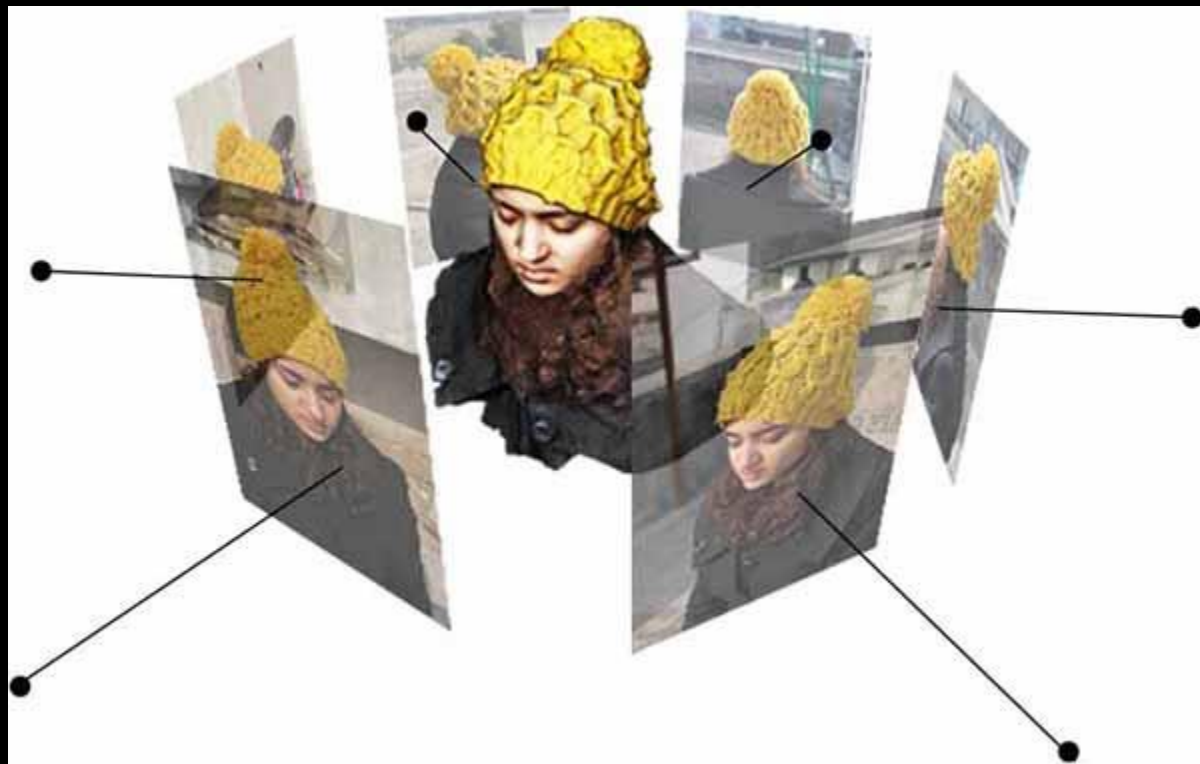
# Reconstrução de imagens 3D

Transformar uma imagem 2D para 3D:



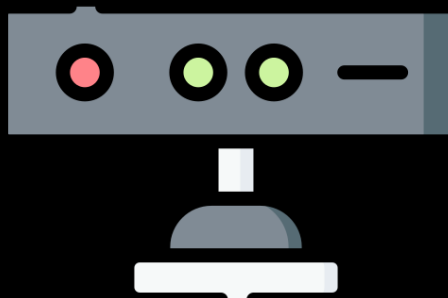
# Reconstrução de imagens 3D

Transformar uma imagem 2D para 3D:



# Kinect - Microsoft

Sensoriamento 3D por laser



Depth Map



3D Reconstruction



# Depth estimation - COLAB

co

depth\_estimation

Arquivo Editar Ver Inserir Ambiente de execução Ferramentas Ajuda Não é possível salvar as alterações

índice

Monocular depth estimation

Introduction

Setup

Downloading the dataset

Preparing the dataset

Preparing hyperparameters

Building a data pipeline

Visualizing samples

3D point cloud visualization

Building the model

Defining the loss

Model training

Visualizing model output

Possible improvements

References

Seção

+ Código + Texto Copiar para o Drive

RAM Disco

↑ ↓

Monocular depth estimation

Author: [Victor Basu](#)

Date created: 2021/08/30

Last modified: 2021/08/30

Description: Implement a depth estimation model with a convnet.

Introduction

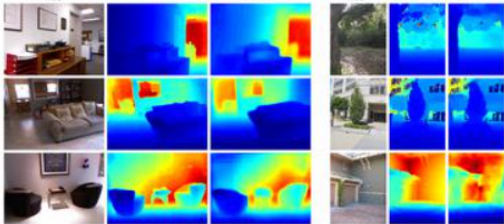
Depth estimation is a crucial step towards inferring scene geometry from 2D images. The goal in *monocular depth estimation* is to predict the depth value of each pixel or inferring depth information, given only a single RGB image as input. This example will show an approach to build a depth estimation model with a convnet and simple loss functions.

NYU Depth v2

RGB Ground Truth Depth Prediction

Make3D

RGB Ground Truth Depth Prediction



# Obrigado!

*Machine Learning*

Prof. Dr. Diego Bruno



OpenCV