

# DEPTH ESTIMATION IN STEREO IMAGES

**Brought to you by: Shallow Team**

Presented by:

Ameya Shringi  
Vishal Garg

Computational Geometry Presentation 1

STEREO IMAGES ??

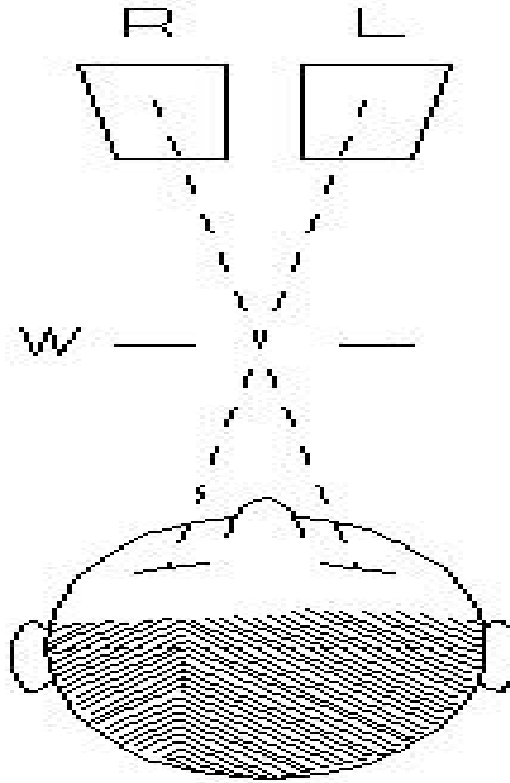
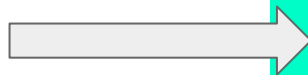
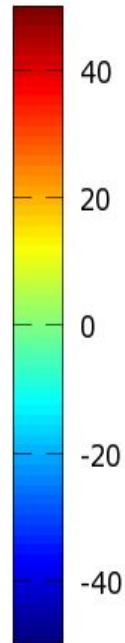
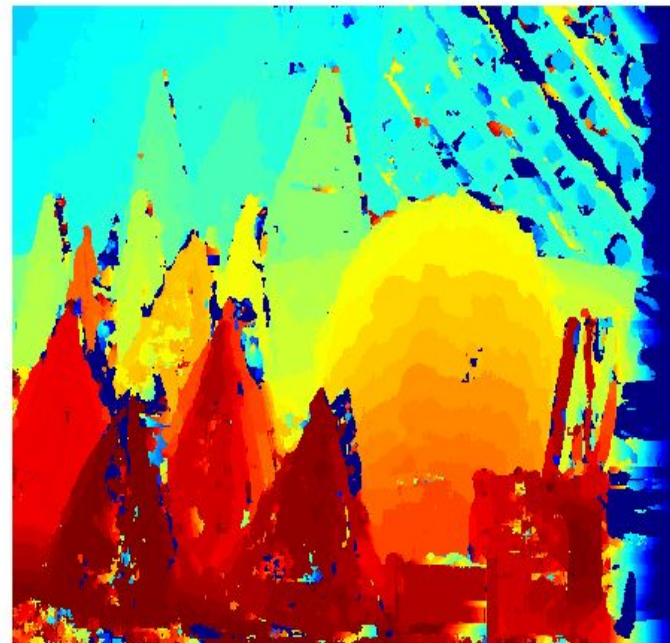


Image Courtesy: <https://www.lhup.edu/~dsimanek/3d/stereo/3dgallery.htm>

Right



Depth map from basic block matching

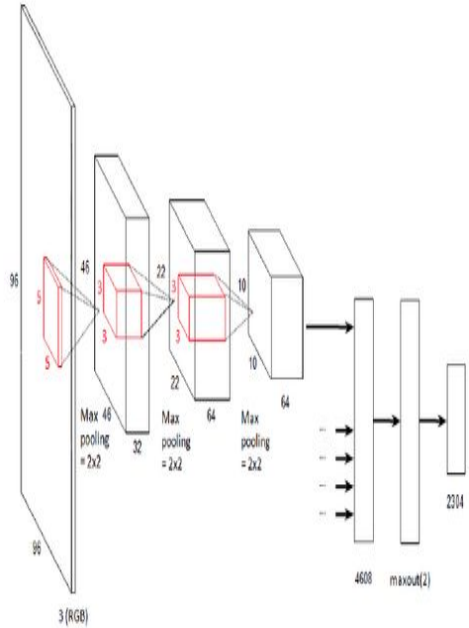


Left



ALGORITHM

# CONV-NET



# 2D DELAUNAY TRIANGULATION

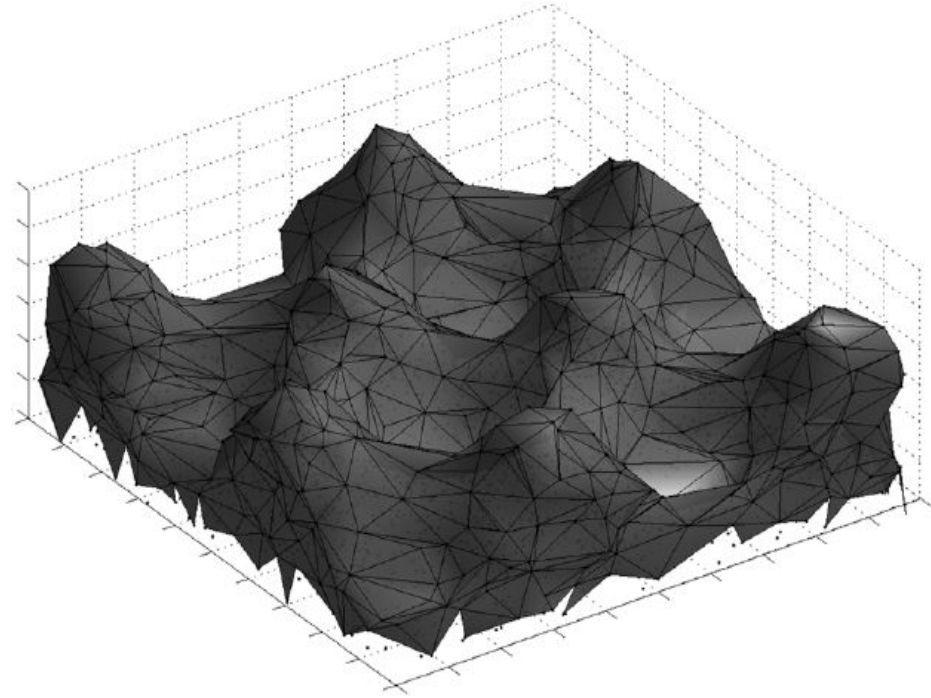


Image Courtesy: Pan, Junting, and Xavier Giró-i-Nieto. "End-to-end convolutional network for saliency prediction.", Rossi, M., et al. "Volumetric reconstruction of the 3D boundary of stream tubes with general topology using tracer particles."

DATASET

- Middlebury 2014 Stereo Dataset
- Stereo Evaluation 2012
- Stereo Evaluation 2015



Image Courtesy: <http://vision.middlebury.edu/stereo/data/scenes2014/>



TIMELINE

WEEK	Work To Be Done
6	Dataset Exploration
7 and 8	Implementing CNN and 2D Delaunay Mid Project Presentation
9 and 10	Fine Tuning CNN and testing on dataset
11 and 12	Runtime Analysis
13	Testing on real world images using Google Tango
14	Comparing Result and Report Writing
15	Final Presentation

# DIVSION OF DUTIES

# CONV-NET

Vishal Garg	Implementation and Analysis of 2D Delaunay Triangulation
Ameya Shringi	Implementation and Analysis of CNN

## REFERENCES

1. Zhang, Xue-he, et al. "Stereo Matching Algorithm Based on 2D Delaunay Triangulation." *Mathematical Problems in Engineering* 2015 (2015).
2. Zbontar, Jure, and Yann LeCun. "Stereo matching by training a convolutional neural network to compare image patches." *Journal of Machine Learning Research* 17 (2016): 1-32.

QUESTIONS ??