

# Digital Image Processing – Project Proposal

## Project Id - 6 – Fast Directional Chamfer Matching

Github Repository :

<https://github.com/amatya99/Fast-Directional-Chamfer-Matching>

Team :

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Goal :

To implement fast directional chamfer matching based on <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5539837&tag=1> .

Problem:

Shape Matching has several applications in Computer Vision some of which are Object Recognition, Image Retrieval, Pose Estimation and Tracking. Generally the algorithms proposed for measuring the similarity of shape representations of objects suffer from a high computational complexity or poor accuracy in the presence of cluttering.

We intend to solve this problem using directional chamfer matching with improved accuracy and time complexity.

Results:

Implement a fast direction chamfer matching and attempt to analyze the improvements (mathematically) and show empirically that the time complexity is reduced to be sublinear.

We shall compare this with existing solutions to the problem to empirically observe improvements in accuracy and computational complexity.

Milestones:

- 5/10/18 - Read and analyze the approach presented in the paper and other popular approaches. (perhaps summarize and submit comparisons)
- 1/11/18 - Implement a fully working code for fast directional chamfer matching based on the approach described in the paper. Also implement a few other popular approaches if needed.
- 8/11/18 - Complete empirical comparisons with other popular approaches, and perhaps existing implementations of this method.