# Project Proposal

## Lei Wang

# My problem name is Union of Fat Objects in 3D.

# Statement: What is the complexity of the union of fat objects in $ \mathbb {R}$3?

# Concept:

# Fat objects: In geometry, an object in two or more dimensions, whose lengths in the different dimensions are similar.

# Input:

# S ={S1,…Sn}a collection of n simply shaped bodies in 3-space of constant description complexity.

# The problem:

# What is the maximal number of vertices/edges/faces that form the boundary of the union of the bodies in S.

# 

# Related work

# Pankaj K. Agarwal and Micha Sharir in 1999 proved if the object is unit ball, the complexity is O(n2+ε).

# Janos Pach , Ido Safruit and Micha Sharir in 2001 proved it is true for congruent cubes.