

# MSc thesis defense presentation

Χρ■στος-Αλ■ξανδρος Ψωμ■ς

## defends his MSc thesis

**Date:** Τετ■ρτη, 20 Α■γ 2014  
[Strategyproof Allocation](#)

**Thesis title:** [of Multidimensional  
Tasks on Clusters](#)

**Committee:**

- [Ευ■γγελος  
Μαρκ■κης](#)
- [Αριστε■δης  
Παγουρτζ■ς](#)
- [Ευστ■θιος Ζ■χος](#)

---

## Thesis abstract

The present thesis focuses on the problem of fair resource allocation in a system containing multiple machines with multiple resources each. The users have heterogeneous demands and Leontief preferences, i.e. demand resources in fixed proportions. Resource allocation is a key issue in the design of cloud computing systems. Traditional solutions, like max-min fairness per resource don't work well in this multi resource setting. Furthermore, efficiency and fairness are not the only issues here; the designer must take into account the users' incentives. In the past couple of years this problem has received a lot of attention from the algorithmic game theory community. We review some the most important results related to multi-resource allocation, starting from the work of Ghodsi et al ([7]) that studied the problem on a single machine setting with fractional tasks. We then move on to the indivisible tasks on a single machine case, studied by Parkes et al ([13]). Finally we discuss the work of Friedman et al ([4]) that studies the problem of executing indivisible, containerized tasks on a multiple machine setting.

Download date: 2021-09-20, 05:00.