

# MSc thesis defense presentation

## Ισίδωρος Τζιότηης defends his MSc thesis

<b>Date:</b>	Τετάρτη, 22 Νοβ 2017
<b>Ώρα:</b>	17:00
<b>Location:</b>	Σχολή Ηλεκτρολόγων Μηχανικών και Μηχανικών Υπολογιστών, ΕΜΠ (παλαιά κτίρια), 1.1.31
<b>Thesis title:</b>	<a href="#">On-line Shortest Path with Switching Cost</a> <ul style="list-style-type: none"><li>• <a href="#">Δημιτρίου Φωτάνης</a></li></ul>
<b>Committee:</b>	<ul style="list-style-type: none"><li>• <a href="#">Αριστείδης Παγουρτζής</a></li><li>• <a href="#">Ευσταθίου Ζήχος</a></li></ul>

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### Thesis abstract

A typical on-line problem proceeds in rounds, where in each round an on-line algorithm is given a request and needs to serve it. We will focus on a

specific class of on-line problems known as Smooth On-line Convex Optimization (SOCO) problems. Two mature research fields that study such problems

are competitive analysis and on-line learning. We will dive into their interrelationship and we will explain how we can benefit by introducing regularization, a

standard technique from on-line learning in the framework of competitive analysis. Subsequently, we will turn our attention towards a rounding technique

introduced over the last couple of years, called exponential clocks. Finally, we will define a new problem in the class SOCO, namely On-line Shortest Path with Switching Cost. Using the toolbox provided by the literature we will obtain an

on-line fractional solution sacrificing a logarithmic factor. We will wrap up presenting a new on-line rounding algorithm using exponential clocks which will

derive a  $\log m \log n$ -approximation for the On-line Shortest Path with Switching Cost problem.