



**ΕΘΝΙΚΟ ΚΑΙ ΚΑΠΟΔΙΣΤΡΙΑΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ**

**ΣΧΟΛΗ ΘΕΤΙΚΩΝ ΕΠΙΣΤΗΜΩΝ  
ΤΜΗΜΑ ΠΛΗΡΟΦΟΡΙΚΗΣ ΚΑΙ ΤΗΛΕΠΙΚΟΙΝΩΝΙΩΝ**

**ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ**

**ΔΙΠΛΩΜΑΤΙΚΗ ΕΡΓΑΣΙΑ**

**Μάθηση πολλαπλών στόχων στην μουσική με  
νευρωνικά δίκτυα**

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**ΕΠΙΒΛΕΠΩΝ ΚΑΘΗΓΗΤΗΣ: Πρώτο μέλος, Βαθμίδα Οργανισμός**

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**SCHOOL OF SCIENCES  
DEPARTMENT OF INFORMATICS AND TELECOMMUNICATIONS**

**PROGRAM OF POSTGRADUATE STUDIES**

**MsC THESIS**

# **Music multitask learning with neural networks**

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**ATHENS**

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## **ΔΙΠΛΩΜΑΤΙΚΗ ΕΡΓΑΣΙΑ**

Μάθηση πολλαπλών στόχων στην μουσική με νευρωνικά δίκτυα

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Πρώτο μέλος, Βαθμίδα Οργανισμός

**Ημερομηνία Εξέτασης: 15 Μαΐου 2010**



## **MsC THESIS**

Music multitask learning with neural networks

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## ΠΕΡΙΛΗΨΗ

Η περίληψη στα Ελληνικά.

**ΘΕΜΑΤΙΚΗ ΠΕΡΙΟΧΗ:** Θεματική Περιοχή

**ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ:** Λέξη κλειδί1, λέξη κλειδί2, λέξη κλειδί3



## **ABSTRACT**

In recent years machine learning has had significant breakthroughs in many fields mainly through the use of Artificial Neural Networks(ANN). Their name derives from the vague relation of the concept of their basic elements, namely neurons, to the biological neurons that constitute animal brains. After decades of obscurity they have returned to the forefront of scientific machine learning experimentation in recent years. The main reason being the work of [?] which substantially improved the results of the state of the art at the time in image object classification. Following that breakthrough, a trend of using neural networks began to emerge which gave birth to the the area of Deep Learning. Informally, that area constitutes the usage of increasingly deeper and more complex network architectures in order to solve more complicated problems but also to exploit the abundance of data that the age of the internet has brought. The subject of this master thesis is to use feed-forward Convolutional Neural Networks(CNN) in the context of multitask learning using spectrograms originating from music data.

**SUBJECT AREA:** Subject Area

**KEYWORDS:** Keyword1, keyword2, keyword3



## **ACKNOWLEDGEMENTS**



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## **PREFACE**



## **1. INTRODUCTION**





## **2. BACKGROUND AND RELATED WORK**



### **3. ANOTHER CHAPTER**



## **4. CONCLUSIONS AND FUTURE WORK**



## ABBREVIATIONS - ACRONYMS

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RDF	Resource Description Framework
SPARQL	SPARQL Protocol and RDF Query Language
OWL	Web Ontology Language
OGC	Open Geospatial Consortium

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## **APPENDIX A. FIRST APPENDIX**



## **APPENDIX B. SECOND APPENDIX**



## **APPENDIX C. THIRD APPENDIX**



## REFERENCES