Topics for Diploma and M.Sc. dissertations

The topics for diploma (πτυχιακή) and M.Sc. dissertations (διπλωματική) that my group can supervise fall into the following categories.

Semantic Web and Linked Data Technologies (especially for geospatial information)

For an introduction to this topic, see the slides of my postgraduate course Knowledge Technologies (http://cgi.di.uoa.gr/~pms509/lectures.htm). If you are interested in this topic, you will have to read some of the slides of the course, do a few programming exercises that we will mark, and then start your dissertation. You could work on one of the topics of the following papers:

- https://arxiv.org/pdf/2007.07060.pdf
- http://cgi.di.uoa.gr/~koubarak/publications/2019/yago2geo_iswc2019.pdf
- http://cgi.di.uoa.gr/~koubarak/publications/2021/GeospatialInterlinking.pdf

Deep Learning for Natural Language Processing

For an introduction to this topic, see the slides of my course Artificial Intelligence II (https://eclass.uoa.gr/courses/DI517/). If you are interested in this topic, you need to have completed the course already with a mark greater than equal to 8/10. You could work on one of the topics of the following papers:

- https://arxiv.org/pdf/2008.12014.pdf
- https://arxiv.org/pdf/2004.13637.pdf
- https://openreview.net/pdf?id=ee6W5UgQLa
- https://www.amazon.science/publications/x-bert-extreme-multi-label-text-classification-using-bidirectional-encoder-representations-from-transformers
- https://www.ijcai.org/Proceedings/2020/0537.pdf
- https://arxiv.org/pdf/2012.13048.pdf

Artificial Intelligence and the Law

For an introduction to this topic, see the following two papers:

- http://cgi.di.uoa.gr/~koubarak/publications/2018/jurix2018.pdf
- http://cgi.di.uoa.gr/~koubarak/publications/2018/nomothesia-linked-data.pdf
- https://aclanthology.org/2020.findings-emnlp.261.pdf

Your topic will be related to these papers and our platform Nomothesia (http://legislation.di.uoa.gr/).

Application development for mobile phones and smart watches

Today's mobile phones and smart watches can provide us with a wealth of information about our body, our daily routine, the way we exercise and do sports, the environment around us etc. If you are interested in this topic, your topic will be to: (i) evaluate what is offered by the top companies in this area and the relevant operating systems and development environments, and (ii) design an interesting application that will run on a chosen mobile phone or smart watch.