

# Antonios Alexos

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## Profile

If loving data is wrong, I don't want to be right.

I am 1st year PhD student studying Statistical Machine Learning at UCI. I am fortunate to be advised by Professor Stephan Mandt.

I finished my undergraduate studies in the Electrical and Computer Engineering Department at the University of Thessaly(UTH) and graduated 4th in my class. I did my undergraduate thesis with Dr. Gerasimos Potamianos on Sign Language Translation.

As an undergrad I founded HERMES(an exoskeleton for Cybathlon 2020 in Zürich), I am a Mentor of the IEEE Student Branch Volos and I was the founder and president of the UTH Trading and Investing Club. I also worked in Hilti(Switzerland), in the Oactive project in CERTH(Volos) with Dr. Dimitrios Tsaopoulos, in In4Capital(London-remote) and in SML Lab(Limassol-remote) with Dr. Sotirios Chatzis.

I love challenges, hard work, high pressure and running a lot of projects at the same time . I work well in a team, I had also experience with intercultural team-members, and I try to take leadership initiatives.

You can find more details of the above at <https://www.ics.uci.edu/~aalexos>

## Education

- University of California at Irvine, 2020-current, PhD at Computer Science(Statistical Machine Learning)
- University of Thessaly-Electrical and Computer Engineer, 2015- 2020, Diploma with minor in Data Science
  - Talos Robotics Group(Summer of 2016)
  - HERMES Team(October 2018-present)
  - IEEE University of Thessaly Volos Student Branch(May 2016-present)
  - Volos Devs(May 2017-present)
  - Chess Club Volos(Feb 2016-May 2016)
  - UTH Trading and Investing Club(Oct 2017-present)
- High School Ekpaideutiria N. Mpakogianni, Larisa, Greece - 19.4/20 GPA
- Summer Camp of Mathematics at Leptokarya, Greece(July 2013)
- Summer Entrepreneurship Training 2017 (by ESTIEM)

## Work Experience

- **In4Capital**

June2018-August 2018

As a business intelligence and data science intern, I was working mainly in data scraping, information retrieval and in a list of investors; while apart from those, I wrote also various data manipulation scripts. I worked mostly with python and the libraries selenium and beautifulsoup. I was working remotely.

- **Oactive**

June2019-August2020

I work as a Machine Learning Intern in Oactive, a project from CERTH, the biggest Research Center in Greece. I am fortunate to be advised by Serafeim Moustakidis and Dimitris Tsaopoulos. Oactive is fund-

ed from the European Community's H2020 Programme, and we are trying to improve the quality of life for people that are suffering from Knee Osteoarthritis. I mostly work on classification problems with unbalanced datasets on Knee Osteoarthritis. We have successfully predicted the progression of Osteoarthritis on patients with just the data of an accelerometer..

- **Statistical Machine Learning Lab at CUT**

July2019-August2020

I worked as a research under the supervision of Dr. Sotirios Chatzis. We worked in 2 projects together. The first one was figuring which attributes matter the most in loan origination which was presented in Robust AI in Financial Services workshop in NeurIPS 2019. The second work is about local competition and uncertainty towards adversarial robustness.

- **Hilti**

March2020-July2020

I work as a Data Science Intern in Hilti, on the Heavy Diamond Tools project. I am currently responsible for the DST-20 CA. I mostly work on classification and clustering problems regarding the DST-20 CA, and on some secondary tasks that I have been given.

## Publications

- A. Alexos, S. Chatzis. **Which attributes matter the most for loan origination? A neural attention approach**. NIPS 2019 workshop
- A. Alexos, S. Moustakidis, C. Kokkotis, D. Tsaopoulos. **Physical activity as a risk factor in the progression of Osteoarthritis: A machine learning perspective**. LION14

## Teaching Experience

- Teaching Assistant in the spring semester 2019 in Advanced Machine Learning course, under the guidance of Dr Ilias Houstis.(Feb2019-Jun2019)
- Teaching Assistant in the fall quarter 2020 in Machine Learning course, under the guidance of Dr. Alexander Ihler(Sept2020-Dec2020)

## Volunteer Experience

- IEEE University of Thessaly SB Volos  
Mentor(September 2019 - Present)  
Chair(September 2018 - September 2019)  
Vice Chair(November 2017 - September 2018)
- Volunteer at Hellenic Airforce Veteran Club at Volos(Mar 2016 - Jun 2016)
- Delegate at various national, regional and international organisations simulations and conferences
  - Thessaloniki International Student Model United Nations 2017, Thessaloniki, Greece/ Delegate of Romania/ 2nd G.A Economical and Financial Committee with verbal mention award
  - Model Regional Co-operation 2017, Rhodes, Greece/ Delegate of Turkey/ Black Sea Economic Co-operation with honorary mention.
  - European Central Bank Simulation 2017, Athens, Greece/ Central Banker Representative of Belgium.
  - Model of Greek Parliament 2018, Athens, Greece/ Member of Liberal Movement/ Finance Committee.

## Skills

Programming(C, Python, Java, C++, Unix, SQL, Matlab, MQL4, R, SaS), Data Science, Deep Learning, Machine Learning, Big Data, Artificial Intelligence, Statistics, Statistical Machine Learning, Computer Vision, Algorithmic Trading, Neural Networks, Mathematics, Information Retrieval, Debate, Public Speaking, Pub-

lic Relations, Leadership, Intercultural Communication, Organisation Skills, Teamwork, Presentation Skills, Trading, Investing, Critical Thinking, Emotional Intelligence, Complex Problem Solving.

## Projects

- **Stock Prediction with Machine Learning Project**

A research project that started for CE417 course at university of Thessaly under the direction of Dr. Ilias Houstis. The purpose of the project is to build a profitable predictive system for the price of Goldman Sachs stock. A lot of data and feature engineering is done, in which other features that affect the stock's price have been added. Features as other banks' prices, some technical indicators such as moving average, MACD, bollinger bands, etc and we also some fourier transformations mostly for denoising the data and recognising some trends for the price. The feature importance is examined with Xgboost and PCA, and the final prediction has been achieved through LSTM. A great detail that we added, is the gain metric that gives us better insight for the accuracy of the model. Lastly, a unique innovation is that the final prediction is achieved through classification, whether we have predicted a day that will be positive or negative. It should be noted that this model achieves spectacular gains and really good result.

- **Hellenic Robotic Modular Exoskeleton System(HERMES)**

A collaboration between IEEE SB Volos and IEEE RAS University of Central Macedonia. We are building an exoskeleton in order to compete at CYBATHLON 2020. We are using brushless motors from Maxon Motor. The code is written in C++, more specifically APIs from Maxon Motor. The exoskeleton that we are building will be able to: sit and stand up, do a slalom, walk up and down the stairs, walk in an inclined ground. We have multiple sensors that make the exoskeleton more stable and secure for the "pilot".

- **Future Citations Prediction with Neural Networks**

A final project for the course CE418 Neural Fuzzy Logic taught by Dr. Dimitrios Katsaros. We took the data from this link Citation-network V1 (<https://aminer.org/citation>). The data needed a lot of preprocessing because of their form. The goal is that to predict the future citations in a specific year of a paper, based on the citations that it had until now. We implemented this using a simple CNN with 5 layers and the training was done on Big Data from the link above.

- **Clustering MetaSearch Engine**

A project for CE327 course at University of Thessaly under the direction of Dr. Dimitrios Katsaros. The project's purpose is to create a clustering metasearch engine that shows the results of a google search in clusters. The whole project is in Python. We have used for the GUI the Tkinter library for retrieving user's queries and displaying the results of the search. They are displayed as a list of clusters; we have each cluster along with its respective results. For internet interaction we have used the libraries googlesearch and requests. We send the queries to google and retrieve the 100 first results. If an exception occurs we skip the url that caused it. After saving the html file, we parse the text, which we edit in order to use it, with beautifulsoup library. For clustering we have used the sklearn library that implements the KMeans algorithm.

## Online Courses

- Behavioral Finance-Duke University(via Coursera)
- Computational Investing, Part I-Georgia Institute of Technology(via Coursera)
- Financial Markets-Yale University(via Coursera)
- Lean Entrepreneurship Course-ESTIEM(via Business Booster ESTIEM)
- Machine Learning-Stanford University(via Coursera)
- Online Marketing Fundamentals in Tourism- Grow Greek Tourism(via Google)
- Social Psychology-Wesleyan University(via Coursera)

- Learning How To Learn - McMaster University & University of California San Diego(via Coursera)
- Algorithmic Trading In Forex: Create Your First Forex Robot!(via Udemy)

## Test Scores

- SAT Subject Math Level 2 - 770/800(October 2016)
- SAT Subject Physics - 700/800(October 2016)
- GRE(Q 166/170)(October 2019)
- TOEFL(107/120)(September 2019)

## Hobbies

Reading, coding, investing, sports, playing chess.

## Organisations

- UTH Trading and Investing Club(Founder and President)(Oct 2017-Sept 2019)
- Volos Devs(May 2017-Sept 2019)
- IEEE(member)(May 2017-present), (Vice Chair Nov 2017-Sept 2018)(Chair Sept 2018-Sept 2019)(Mentor Sept 2019-present)
- Chess Club Volos(Feb 2016-May 2016)

## Communication

LinkedIn: <https://www.linkedin.com/in/antonios-alexos-861446122/>

Facebook: <https://www.facebook.com/antony.alexos>

Twitter: <https://twitter.com/antonyalexos>

Github: <https://github.com/antonyalexos>

Website: <https://www.ics.uci.edu/~aalexos>