Georgios Tzannetos

Personal Information

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Interests Artificial Intelligence, Robotics, Computer Vision, Machine Learning, Neural Networks, Deep Learning, Computing, Simulation, Data Mining, Data Science, Graphical Models

Education

Oct. 2016-Dec. 2018	**Master of Science M.Sc**	Computational Science and Engineering	*Technical University of Munich TUM*
GPA : **1.6** in German System	Thesis: "Augmented Reality Data Generation for Deep Learning based Lane Detection"	Advisor: Dr. Ing. Habil Federico Tombari	
Oct. 2010-Feb. 2016	**Master of Science M.Sc**	Mechanical Engineering	*National Technical University of Athens*
GPA : **8.50/10.0**	Thesis: "A Continuous Differential Competitive Game between an Unmanned Aerial and a Ground Vehicle"	Advisor: Prof. Konstantinos Kyriakopoulos	

Major: Mechanical Design, Control Systems & Robotics GPA: **9.05**

Experience

Sep 2019-Now — **Data Scientist** at Fujitsu
Part of the software delivery team. Main tasks include the use, maintainance and further development of Fujitsu's **AutoML** system. Working on the sandbox development of Fujitsu's Digital Manufacturing Platform, i.e smart factory solution.

Feb 2019-Jul 2019 — **Data Scientist/Computer Vision, Intern** at AGT International R&D Group
Responsible for the virtual advertising project. Combination of classical computer vision methods, like image registration, developed in **OpenCV**, with deep learning methods, mainly Mask-RCNN, in **Caffe2**, to segment and produce highly accurate advertisement masks.

May 2018-Oct 2018 — **Machine Learning in Autonomous Driving,** at Audi Electronics Venture
Master Thesis, Automating the generation of a synthetic dataset, by superimposing objects on real images with the use of a computer graphics software, **Blender**. Image registration, depth completion and 3D road segmentation were implemented in **Python**. The created dataset was used to train a deep learning model to perform lane detection and performance was compared with real datasets, written in **Keras**.

Nov 2017-Feb 2018 — **Data Scientist, Working Student** at Trillr
Responsible for setting up and maintaining company's database, deployed in **Docker**. Migrating existing **MySQL** database to **MongoDB**. Responsible for collecting data from various sources and APIs and storing them. Daily, weekly and long term data analysis, regarding different relevant KPIs was performed with **Python**, **Pandas** and **Tableau** to increase productivity and suggest improvements.

Jan 2015-Feb 2016 — **Research Assistant, Undergraduate** at NTUA, Control Systems Lab, Athens
Diploma Thesis, Applications with Robotics software and hardware. For this purpose **ROS** (Robot Operating System) was used, which is supported by **Linux**. Theoretical analysis and real-time implementation of game theory to the robotic platforms, Asctec Firefly and Pioneer Mobile Robot. Applied sophisticated controls, such as model predictive control, written in **C++**.

Skills

- C/C++
- Linux
- MATLAB
- Python
- PyTorch
- Keras
- Caffe
- OpenCV
- Numpy
- Pandas
- Blender
- MongoDB
- Hadoop
- Spark
- Docker
- SQL
- LaTeX
- Fortran
- ROS
- JavaScript

Languages

- **Greek** → native language
- **English** → Proficient User, Certificate of Proficiency in English, University of Michigan
- **German** → Independent User, Zertificat B2, Goethe Institute

Personal and Team Projects

Distributed Data Mining Lab	Our team created a multinode **Spark** cluster and ran applications in a distributed manner. A framework developed in **Python** was used to perform named entity recognition with conditional random fields (CRF) and then find relationships between the entities using support vector machines (SVM). The goal was to extract proteins and their possible locations from all existing papers stored in PubMed. Results were stored in **Elasticsearch**; **Kibana** was used for the final visualization.
Iceberg Classification	A deep learning model to achieve accurate binary image classification of satellite images was developed in **Pytorch**. Preprocessing with **Numpy** and **OpenCV** was performed, as well as image augmentation. To achieve the final results experimentation with state-of-the-art CNNs was done, along with cross-validation for hyper-parameter tuning.
Text Classification	A model was developed, trained and tested, in **PyTorch**, to classify text sentences from literature books. The method was based on Character Level Convolutional Networks.
Programming at LRZ's supercomputer, SuperMUC	Developed a parallel implementation of matrix-matrix multiplication in **C++**. Different parallel programming models were compared performance-wise, using **OpenMP** and **MPI**. Debugging parallel programs, as well as parallel I/O was researched.
Computational Project	Prediction of cushion diagrams, used in packaging engineering. Their experimental approximation was developed in **Matlab.**
BioMEMS Magnetic Bead Trapping	We developed a micro-fluidic device to trap beads, based on magnetic force, for biological experiments. We also designed some chambers to test our system and performed experimental work to verify its efficiency. The devices were shaped with a laser cutting engraving machine. With a method that required a microscope, we approximately counted the number of the trapped beads.
Design of the prototype for a mobile-application	Our team designed the prototype of a mobile-application for setting appointments with technicians in a fast and efficient way. An analysis of the Greek market demand and of the needs of clients and technicians was performed. Functional prototypes were designed using **Justinmind**. Finally, after volunteers tried our app mock-ups, we designed an app that was ergonomic, useful, and easy to use, based on A/B testing.

Conference Papers/Publications

[1] **G. Tzannetos**, P. Marantos, and K. J. Kyriakopoulos, "A competitive differential game between an unmanned aerial and a ground vehicle using model predictive control," in *IEEE, on the 24th Mediterranean Conference on Control and Automation*, vol. 2016.

Honors/Awards

2016-17	Fulfilled the requirements to participate in the master's Honors track, Bavarian Graduate School of Computational Engineering (BGCE)
2013-14	Karudogianni Award Nominee, top student Mechanical Engineer, GPA: 9.36/10.0
2011-12	Papakyriakopoulos Award for Mathematics Exams Excellence at NTUA
2004-07	Athanasiadi's Foundation Award for excellent school performance for 3 consecutive years

Educational Trips

[1] CERN's facilities and Labs, April 2009

[2] Research Center of the Greek Military, September 2013

Activities

teaching, Tae-Kwon-Do athlete(2nd Dan), Rubik's cube speed-cuber, football