Georgios METHENITIS

Curriculum Vitæ

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Work Experience

Oct. 2019 ~ Current

MLP (Open GI Group), SENIOR DATA SCIENTIST

- *Working on machine learning applications for insurance markets, e.g., competitive price prediction in online insurance aggregators, prediction of rare events (imbalanced datasets) such as insurance claims.*
- *Building and maintaining the overall software pipeline from data validation to model evaluation.*
- *Deep-learning (PyTorch, TensorFlow), gradient boosting trees (XGBoost, LightGBM), and linear regression.*

Jun. 2014 ~ Sep. 2014

European Space Agency, INTERNSHIP

- *Worked in the Advanced Concepts Team on the project "Novelty Search for Soft Robotic Space Exploration".*
- *Applied novel evolutionary search methods (novelty search) for optimizing the morphology and gaits of soft-robots in varying gravity levels (video).*

Jan. 2013 ~ Mar. 2014

Dutch Nao Team (Robotic-soccer team), LEAD PROGRAMMER

- *Developed existed C++ codebase for the* Aldebaran NAO *robot and the Standard Platform League, focusing on robot localization, team strategy and player behavior.*
- *Participated (placed in top-16 and 3rd) in international and open* Robocup Standard Platform League *competitions.*

Oct. 2013 ~ Feb. 2014

University of Amsterdam, TEACHING ASSISTANT

- *Assisted in teaching the course* C++ programming language.

Oct. 2013 ~ Feb. 2014

VicarVision (Computer vision company), INTERNSHIP

- *Designed and developed an algorithm (in C# using OpenCV library) for estimating floor plane from monocular camera footage based on human detection samples.*
- *The resulted algorithm was able to determine the floor boundaries and the relative position of the floor plane in the three-dimensional space with regards to the camera placement.*

Education

Feb. 2015 ~ Aug. 2019

PhD Artificial Intelligence - DELFT UNIVERSITY OF TECHNOLOGY & CWI [1]

- *Research on the application of AI methods in energy systems. Supervised by: Prof. Han La Poutré (CWI & TU Delft) and Dr. Michael Kaisers (Researcher, CWI).*
- *Main focus on the analysis of the behavior of self-interested agents within multi-agent systems using tools from game theory, and the design of pricing mechanisms in settings with uncertainty in supply and/or demand.*
- *Courses on deep learning (MSc course at the University of Amsterdam), European agent systems summer school, algorithmic game theory, non-cooperative games, stochastic optimization, entrepreneurship in mathematics and computer science, and several doctoral-level education workshops.*
- ***PhD Thesis**: Agent Interactions & Mechanisms in Markets with Uncertainties: Electricity Markets in Renewable Energy Systems*

Sep. 2012 ~ Dec. 2014

MSc Artificial Intelligence - UNIVERSITY OF AMSTERDAM

- *Courses on machine learning (pattern recognition), neural networks, autonomous agents (reinforcement learning, multi-agent learning), natural language processing, computer vision, and information retrieval.*
- *Thesis project on the Evolution of Soft-Robots by Novelty Search, in collaboration with the Advanced Concepts Team in the European Space Agency (ESA), supervised by: Daniel Hennes (ESA), Dario Izzo (ESA) and Arnoud Visser (UvA), grade: **9**/10.*

[1] CWI (Centrum Wiskunde & Informatica) is the national research institute for mathematics and computer science in the Netherlands.

Sep. 2006 ~ Aug. 2012

Diploma in Electronic and Computer Engineering [2] - Technical University of Crete

- *Courses on software programming, algorithms and complexity, mathematics, probability theory, computer vision, signal processing, artificial intelligence, theory of computation, operating systems, and databases.*
- *Thesis project on Player Behavior and Team Strategy for the RoboCup 3D Simulation League, supervised by: Prof. Michael G. Lagoudakis. I developed all the necessary software modules (in Java) for robot localization, biped locomotion, communication, team strategy, and coordination, grade:* ***10****/10.*

Research Publications

1. Georgios Methenitis, Michael Kaisers, and Han La Poutré. **Forecast-Based Mechanisms for Demand Response**. In: *Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems*. AAMAS '19. Montreal QC, Canada: IFAAMAS, 2019
2. Georgios Methenitis, Michael Kaisers, and Han La Poutré. **Degrees of Rationality in Agent-Based Retail Markets**. In: *Computational Economics* (2019)
3. Georgios Methenitis, Michael Kaisers, and Han La Poutré. **Renewable Electricity Trading through SLAs**. In: *Energy Informatics* 1.1 (2018)
4. Georgios Methenitis, Michael Kaisers, and Han La Poutré. **SLA-Mechanisms for Electricity Trading Under Volatile Supply and Varying Criticality of Demand**. In: *Proceedings of the 16th Conference on Autonomous Agents and MultiAgent Systems*. AAMAS '17. Sao Paulo, Brazil: IFAAMAS, 2017
5. Georgios Methenitis, Michael Kaisers, and Han La Poutré. **Incentivizing Intelligent Customer Behavior in Smart-Grids: A Risk-Sharing Tariff & Optimal Strategies**. In: *Proceedings of the 25th International Joint Conference on Artificial Intelligence, IJCAI*. AAAI Press. 2016
6. Georgios Methenitis, Michael Kaisers, and Han La Poutre. **A Multi-Scale Energy Demand Model suggests sharing Market Risks with Intelligent Energy Cooperatives**. In: *Smart Grid Technologies - Asia (ISGT ASIA)*. IEEE. 2015
7. Georgios Methenitis, Daniel Hennes, Dario Izzo, and Arnoud Visser. **Novelty Search for Soft Robotic Space Exploration**. In: *Proceedings of the 2015 Annual Conference on Genetic and Evolutionary Computation*. GECCO '15. Madrid, Spain: ACM, 2015

Technical Skills

Programming (libraries)

Python (PyTorch, TensorFlow, XGBoost, LightGBM, CatBoost, NumPy, scikit-learn, pandas, seaborn), **SQL**, **C/C++** (Boost, OpenCV, Qt, CMake), Java, C#, Matlab, HTML/CSS

Dev. tools / IDEs / OS

Git, **Jupyter notebook**, **Bash** / **Vim**, Spacemacs, **LaTeX**, PyCharm, Qt Creator / **GNU/Linux** (Arch, Debian), MS Windows, MacOS

Robot platforms

Experience with robotic simulators and platforms, such as Webots, Spark, **Aldebaran NAO**, Sony AIBO

Interests

- E-commerce and financial market machine learning applications
- Design of pricing mechanisms (e.g., auctions) in settings with supply and/or demand uncertainty
- Analysis of emergent market behavior via agent-based simulation
- Game theoretical analysis of pricing strategies in competitive markets
- Evolutionary algorithms (fitness-based or novelty-based) for hyper-parameter or fitness optimization

[2] Five-year diploma: comparable with attending both BSc and MSc programmes (EQF 7).