# CHARILAOS MYLONAS

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https://mylonasc.github.io/aboutme

## EDUCATION

Sept. 2016 – Present
**ETH Zürich**
*Ph.D in Machine Learning & Generative Modelling for Wind Energy*

Sept. 2012 – Sept. 2015
**ETH Zürich**
*M.Sc. in Computational Science and Engineering*
*Thesis: Shape Optimization with Boundary Elements*

Sept. 2005 – May 2012
**Aristotle University of Thessaloniki**
*Dipl. Ing. Civil Engineering*
*Focus on Structural Engineering*

## WORK EXPERIENCE

Sept 2016 – Present
**ETH Zürich**
*Ph.D. Candidate / Research Assistant*

- Defined and implemented novel applications of GraphNets to localization with arbitrarily positioned sensors remaining useful life prediction and wind farm wake interactions
- Employed deep generative models to model operational conditions of wind farms and blade damage accumulation
- Contributed to OpenFAST wind turbine and wind farm simulation software
- Created a GraphNets library (`https://github.com/mylonasc/tf-gnns/`)

Dec. 2015–Sept. 2016
**ETH Zürich**
*Research Assistant*

- Implemented and tested automated hyper-parameter tuning and training strategies for a CP-tensor decomposed regression module
- Implemented numerical construction of orthogonal polynomials w.r.t. arbitrary probability measures
- Developed unit tests for various algorithms maintenaned existing ones.

Jul 2014 – Dec 2014
**Credit Suisse**
*Full-Stack Software Developer (internship)*

- Implemented and validated in C++ an R interface for an option pricer, replacing pre-existing text-based one (more than 10-fold performance improvement)
- Implemented a REST-API server and an interactive web GUI
- Implemented a web-based script editor for a domain specific language for sharing of time series processing pipelines and visualizations.
- Developed unit tests & benchmarks for the created code, including automated inter-commit benchmarking scripts

## TECHNICAL STRENGTHS

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|---|---|
| **Programming** | Python, Matlab, R, Java, JavaScript, C++ (working knowledge)<br>Linux shell scripting |
| **SW Development Experience** | Scientific Computing (FEM/FVM/BEM/Particle Methods),<br>Machine learning algorithms<br>Test-driven development, Full–stack web development,<br>Design patterns & Software design |
| **Other relevant skills** | Distributed/Parallel Computing (OpenMP, MPI),<br>Large Dataset Creation and processing,<br>Custom web–based tools for model performance inspection and comparison.<br>Fast and self–driven learner and creative problem solver |

## OTHER INFORMATION

**Teaching and Thesis Supervision**

- **High Performance Computing for Computational Science and Engineering** (2020) (Prof. O. Schenk)
- Method of Finite Elements (2017 – 2019) (Prof. E. Chatzi)
- Linear Algebra Lab (2008) (Prof. Chara Charalambous)
- *Student project supervision* 6 M.Sc. theses and Semester projects, 2 on going, and consulted on several others (during Ph.D. studies)
- *Reviewer assignments* for Mechanical Systems and Signal Processing and Journal of Sound and Vibration

**Scholarships and Certificates**

- **Human Subject Reseach Certificate** (Data or Specimens Only) CITI-Program Training (April 2020)
- **SIAM Gene Golub Scholarship** for Ph.D. Summer school on "***High-Performance Data Analytics***" *Aussois, France 2019* (competitive selection procedure)

## SELECTED WORKS

**December 2020** [1] ***Mylonas C.****, Tsialiamanis G., Worden K. and Chatzi E. N.* Bayesian graph neural networks for strain-based crack localization. *arXiv preprint arXiv:2012.06791, 2020*

**November 2020** [2] ***Mylonas C.****, & Chatzi E. (2020).* Remaining Useful Life Estimation Under Uncertainty with Causal GraphNets. *arXiv preprint arXiv:2011.11740, 2020*

**January 2019** [3] ***Mylonas, C.****, Abdallah, I., & Chatzi, E. N. (2020).* Deep Unsupervised Learning For Condition Monitoring and Prediction of High Dimensional Data with Application on Windfarm SCADA Data. *In Model Validation and Uncertainty Quantification, Volume 3 (pp. 189-196). Springer, Cham.*

**May 2017** [4] Konakli K., ***Mylonas C.***, Marelli S., Sudret B. UQlab User Manual - Canonical low-rank approximations *Report UQLab-V1.0-108, Chair of Risk, Safety & Uncertainty Quantification, ETH Zurich, 2017.*

**August 2015** [5] ***Mylonas C.*** Shape Optimization with Boundary Elements MSc thesis for Computational Science degree

## PERSONAL INTERESTS

Electronics and Microcontrollers,

Human-computer interfaces, Interactive Digital Art

Guitar, Photography

Behavioral Evolution and Psychology