

CHARILAOS MYLONAS

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<https://mylonasc.github.io/aboutme>

EDUCATION

SEPT. 2016 – PRESENT	ETH Zürich <i>Ph.D. in Machine Learning & Generative Modelling for Wind Energy</i>
SEPT. 2012 – SEPT. 2015	ETH Zürich <i>M.Sc. in Computational Science and Engineering</i> <i>Thesis: Shape Optimization with Boundary Elements</i>
SEPT. 2005 – MAY 2012	Aristotle University of Thessaloniki <i>Dipl. Ing. Civil Engineering</i> <i>Focus on Structural Engineering</i>

WORK EXPERIENCE

SEPT 2016 – PRESENT	ETH Zürich <i>Ph.D. Candidate / Research Assistant</i> <ul style="list-style-type: none">· 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 graph networks library (https://github.com/mylonasc/tf-gnns/)
DEC. 2015–SEPT. 2016	ETH Zürich <i>Research Assistant</i> <ul style="list-style-type: none">· 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 maintained existing ones.
JUL 2014 – DEC 2014	Credit Suisse <i>Full-Stack Software Developer (internship)</i> <ul style="list-style-type: none">· 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

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

January 2021	<i>Mylonas C., I. Abdallah, and E. Chatzi (2020)</i> Conditional Variational Autoencoders for Probabilistic Wind Turbine Blade Fatigue Damage Equivalent Load Estimation using SCADA data,(To appear in Wind Energy, Wiley)
December 2020	<i>Mylonas C., Tsialiamanis G., Worden K. and Chatzi E. N.</i> Bayesian graph neural networks for strain-based crack localization. <i>arXiv preprint arXiv:2012.06791, 2020</i>
November 2020	<i>Mylonas C., & Chatzi E.</i> Remaining Useful Life Estimation Under Uncertainty with Causal GraphNets. <i>arXiv preprint arXiv:2011.11740, 2020</i>
January 2020	<i>Mylonas, C. and Chatzi, E.</i> Deep CNNs and Adversarial Regularization for Fatigue Damage Failure Prediction of Concrete Anchors <i>3rd general assembly of the Swiss Community for Computational Methods in Applied Sciences (SWISSCOMMAS)</i>
January 2019	<i>Mylonas, C., Abdallah, I., & Chatzi, E. N. (2020).</i> Deep Unsupervised Learning For Condition Monitoring and Prediction of High Dimensional Data with Application on Windfarm SCADA Data. <i>In Model Validation and Uncertainty Quantification, Volume 3 (pp. 189-196). Springer, Cham.</i>
May 2017	Konakli K., <i>Mylonas C.</i> , Marelli S., Sudret B. UQlab User Manual - Canonical low-rank approximations <i>Report UQLab-V1.0-108, Chair of Risk, Safety & Uncertainty Quantification, ETH Zurich, 2017.</i>

PERSONAL INTERESTS

Electronics & Microcontrollers, Guitar	Human-computer interfaces Behavioral Evolution	Interactive Digital Art Psychology
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