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System Dynamics Laboratory (SDLab)

## Postdoctoral Position in Structural Dynamics

### Predictions of strains for fatigue damage accumulation in structures using ambient vibration measurements

#### Description of Research

The SDLab has a position for a Postdoctoral fellow to participate in research related to the development and validation of methods for estimating fatigue damage accumulation and residual lifetime prognosis in structures using monitoring vibrations and considering the effects of uncertainties. As part of the research objectives, it is expected to develop algorithms, relying on the Kalman filter or other Bayesian approximations, for predicting the structural strains by exploiting output measurements from a limited number of vibration sensors, as well as optimizing the number and location of deployed sensors.

A PhD in either Civil, or Mechanical or closely related fields and a strong publication record in international scientific journals are required. Familiarity/experience with one or more of the following is appreciated: system theory, filtering techniques (e.g. Kalman filter), system identification, Bayesian inference, uncertainty quantification, computational methods.

The position is financially supported by the program “Aristeia” on “Uncertainty Quantification and Propagation in Complex Structural Dynamics Simulations using Monitoring Data (UQ-dynamics)” of the "Operational Programme Education and Lifelong Learning" and is co-funded by the European Social Fund (ESF) and Greek National Resources.

The proposed research is expected to be carried out in collaboration with Professor Eleni Chatzi at the Chair of Structural Mechanics, ETH-Zurich ([http://www.ibk.ethz.ch/ch/index\\_EN](http://www.ibk.ethz.ch/ch/index_EN)). Within the framework of this collaboration, short or long term visits to Zurich are planned and will be financially supported.

Applicants should send a CV and at least two names for references (with telephone numbers and email addresses) to:

Costas Papadimitriou, Professor of Structural Dynamics, Department of Mechanical Engineering, University of Thessaly, Email: [costasp@uth.gr](mailto:costasp@uth.gr), Tel: (+30) 2421074006.