

Dipl.-Ing. Kosmas Dragos, M.Sc.

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EDUCATION

- 2021-03 – present **Doctoral Researcher.** Institute of Digital and Autonomous Construction, Hamburg University of Technology, Germany.
- 2014-07 – 2021-02 (Prev.: Chair of Computing in Civil Engineering, Bauhaus University Weimar)
Research topic: “Sensor-based hybrid partial models for the decentralized condition assessment of civil engineering structures”
Investigating embedded systems, embedding algorithms (models) into wireless sensor nodes for structural health monitoring, defining methods for quality management of embedded models.
- 2011-09 – 2012-12 **M.Sc. in Earthquake Resistant Design of Structures.** Department of Civil Engineering, Aristotle University of Thessaloniki, Greece.
Thesis title: “Dynamic analysis of an overpass bridge from field measurements”
Specialized in the fields of computational mechanics, structural dynamics, earthquake engineering, finite element analysis. Familiarized myself with ambient vibration testing, experimental structural dynamics, and structural health monitoring.
Grade: 8.58/10 (“Excellent”)
- 2002-03 – 2007-10 **Dipl.-Ing. in Structural Engineering.** Department of Civil Engineering, Aristotle University of Thessaloniki, Greece.
Thesis title: “Study of a special R/C building”
Elaborated in finite element modeling of unconventional structures and in assessing the behavior of base isolation systems.
Grade: 7.02/10 (“Very good”)

WORK EXPERIENCE

- 2021-03 – present **Scientific assistant – Researcher.** Institute of Digital and Autonomous Construction (IDAC), Hamburg University of Technology, Germany.
Research topic: “Resilient infrastructure based on cognitive buildings”, funded by the German Research Foundation (DFG).
Conducting research towards embedding physics-based models in wireless structural health monitoring (SHM) systems. Participating in teaching of structural health monitoring courses offered by IDAC.
- 2019-01 – 2021-02 **Quality assurance engineer – Software tester.** BETA CAE Systems SA.
Conducted software testing on finite element preprocessing software. Devised and executed software testing scenarios for verifying that software tools met quality standards set by teams of software developers. Developed automated software testing tools for auditing end-to-end processes.
- 2014-07 – 2017-06 **Scientific assistant – Researcher.** Research Training Group 1462 (GRK 1462) (German Research Foundation – DFG), Bauhaus University Weimar.

Research topic: “Evaluation of coupled numerical and experimental partial models in structural engineering” [*Bewertung gekoppelter numerischer und experimenteller Partialmodelle im Konstruktiven Ingenieurbau*]

Conducted research towards model verification and validation within the framework of the research objectives of the group, focusing on embedded models in wireless structural health monitoring (SHM) systems. Participated in teaching of structural health monitoring courses and of Bauhaus summer school projects. Participated in the design and installation of a long-term SHM system in a radio tower in Saxony, Germany, as well as in the processing of the SHM data.

- 2013-01 – 2013-12 **Field Engineer.** S. Vassakos & Associates.
Assisted in the supervision, management and building quality control of construction projects in Thessaloniki and Paros, Greece.
- 2009-03 – 2011-08 **Site Engineer/Manager.** S. Vassakos & Co. LP.
Head supervisor of the construction of a kindergarten within the premises of 424 Military Hospital of Thessaloniki, Greece. Responsible for the coordination of all worksite activities, for project management, and for quality control.

CONTINUOUS EDUCATION

- 2017-06 – 2017-07 **Visiting Researcher.** ViBest – Laboratory of Vibrations and Structural Monitoring, Faculty of Engineering, University of Porto, Portugal.
Implemented a synchronization algorithm into a wireless SHM system. Conducted operational modal analysis using a wireless SHM system on a pedestrian bridge.
- 2016-03 **Visiting Researcher.** Laboratory of Intelligent Systems Technology, Department of Civil and Environmental Engineering, University of Michigan at Ann Arbor, MI, USA.
Investigated the performance of dynamic substructuring algorithms (Craig-Bampton model) embedded into wireless sensor nodes.
- 2014-11 – 2016-06 **DeGrie Lab Participant.** DegrieLab: Greek-German scientific and educational network. Bauhaus University Weimar, Germany/Aristotle University of Thessaloniki, Greece.
Conducted operational modal analysis on a pedestrian bridge after implementing a synchronization algorithm for synchronizing data sets from two SHM systems.
- 2013-05 – present **Conferences/Workshops.**
Attended more than 15 international conferences and workshops.

PUBLICATIONS (SELECTED)

Manolis, G. D., Athanatopoulou-Kyriakou, A., Dragos, K., Arabatzis, A., Karakostas, C.Z. and Lavdas, A., 2014. Identification of Pedestrian Bridge Dynamic Response Through Field Measurements and Numerical Modelling: Case Studies. *BAS Journal of Theoretical and Applied Mechanics*, Vol. 44, No. 2, pp. 03-24.

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Dragos, K. & Smarsly, K., 2016. Distributed adaptive diagnosis of sensor faults using structural response data. *Smart Materials and Structures*, Vol. 25, No. 10, Article ID: 105019.

Dragos, K. & Smarsly, K., 2017. Decentralized infrastructure health monitoring using embedded computing in wireless sensor networks. In: Sextos, A. & Manolis, G. D. (eds.). *Dynamic Response of Infrastructure to Environmentally Induced Loads*. Pp. 183-201. Cham, Switzerland: Springer International Publishing AG.

Dragos, K., Steiner, M., Zabel, V. & Smarsly, K., 2018. Monitoring-based performance analysis of tuned mass dampers in tower structures. [*Monitoringgestützte Analyse von Schwingungsdämpfern in Turmbauwerken*] *Bautechnik*, Vol. 95, No. 6, pp. 401-409.

Dragos, K., Makarios, T., Karetsou, I., Manolis, G. D. & Smarsly, K., 2018. Detection and correction of synchronization-induced errors in operational modal analysis. *Archive of Applied Mechanics*, Vol. 90, No. 7, pp. 1547-1567.

Dragos, K., Theiler, M., Magalhães, F., Moutinho, C. & Smarsly, K., 2018. On-board data synchronization in wireless structural health monitoring systems. *Structural Control Health Monitoring*, Vol. 25, No. 11, e2248.

Manolis, G. D., Pardalopoulos, S. I., Dadoulis, G. I., & Dragos, K., 2020. Analytical modeling of flexible structures for health monitoring under environmentally induced loads. *Acta Mechanica*, Vol. 231, No. 9, pp. 3621-3644.

Dragos, K. & Smarsly, K., 2016. A hybrid system identification methodology for wireless structural health monitoring systems based on dynamic substructuring. In: *Proceedings of the SPIE Smart Structures/NDE Conference: Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems*. Las Vegas, NV, USA, 24/03/2016.

Dragos, K. & Smarsly, K., 2015. Embedding numerical models into wireless sensor nodes for structural health monitoring. In: *Proceedings of the 10th International Workshop on Structural Health Monitoring (IWSHM)*. Stanford, CA, USA, 01/09/2015.

LANGUAGE SKILLS

English:	Proficient user level (C1) in both speech and writing IELTS: Overall Band Score: 8.0 Certificate of Proficiency in English (University of Cambridge)
German:	Independent user level (B1) in both speech and writing
Italian:	Basic user level (A1/A2) in both speech and writing
Greek:	Native speaker

COMPUTING SKILLS

Programming:	Java (Advanced), Python (Basic)
Finite element analysis:	CSI SAP2000 (Advanced), CSI Etabs (Good), ANSA (Good)
MS Office:	Word (Advanced), Excel (Advanced), PowerPoint (Advanced)
Computer-aided design:	AutoCAD (Advanced)

MISCELLANEOUS - LICENSURE

Became a member of the Technical Chamber of Greece on November 26, 2007 and my license as a Civil Engineer was issued on January 29, 2008. Holder of a level B driver's license. Military service completed.

REFERENCES

Available upon request.