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## Publications

### **A Stochastic Programming Model for the Optimal Operation of Unbalanced Three-Phase Islanded Microgrids**

Vergara Barrios, P. P., Lopez, J. C., Rider, M. J., Shaker, H. R., da Silva, L. C. P. & Jørgensen, B. N., Feb 2020, In : International Journal of Electrical Power & Energy Systems. 115, 12 p., 105446.

### **Analysis of the Electrical Quantities Measured by Revenue Meters Under Different Voltage Distortions and the Influences on the Electrical Energy Billing**

de Silva, R. P. B., Quadros, R., Shaker, H. R. & da Silva, L. C. P., Dec 2019, (Accepted/In press) In : Energies. 19 p.

### **A Generalized Model for the Optimal Operation of Microgrids in Grid-Connected and Islanded Droop-Based Mode**

Vergara, P. P., Rey, J. M., Lopez, J. C., Rider, M. J., da Silva, L. C. P., Shaker, H. R. & Jorgensen, B. N., Sep 2019, In : I E E E Transactions on Smart Grid. 10, 5, p. 5032-5045

### **A Stair-Step Probabilistic Approach for Automatic Anomaly Detection in Building Ventilation System Operation**

Alexandersen, E. K., Skydt, M. R., Engelsgaard, S. S., Bang, M., Jradi, M. & Shaker, H. R., 15. Jun 2019, In : Building and Environment. 157, p. 165-171

### **Distributed Strategy for Optimal Dispatch of Unbalanced Three-Phase Islanded Microgrids**

Vergara Barrios, P. P., Rey-López, J. M., Shaker, H. R., Guerrero, J. M., Jørgensen, B. N. & da Silva, L. C. P., May 2019, In : I E E E Transactions on Smart Grid. 10, 3, p. 3210-3225

### **Fault Isolability Analysis and Optimal Sensor Placement for Fault Diagnosis in Smart Buildings**

Trothe, M., Shaker, H. R., Jradi, M. & Arendt, K., 26. Apr 2019, In : Energies. 12, 9, 12 p., 1601.

### **Real Fault Section Estimation in Electrical Distribution Networks Based on the Fault Frequency Component Analysis**

Gord, E., Dashti, R., Najafi, M. & Shaker, H. R., 24. Mar 2019, In : Energies. 12, 6, 30 p., 1145.

### **Optimal Sensors and Actuators Placement for Large-Scale Switched Systems**

Seyed Sakha, M., Shaker, H. R. & Tahavori, M., Mar 2019, In : International Journal of Dynamics and Control. 7, 1, p. 147-156

### **Consensus-Based Method for Anomaly Detection in VAV Units**

Mattera, C. G., Shaker, H. R. & Jradi, M., 1. Feb 2019, In : Energies. 12, 3, 17 p., 468.

### **Optimal Trajectory Tracking Solution: Fractional Order Viewpoint**

Razminia, A., Asadizadehshiraz, M. & Shaker, H. R., Feb 2019, In : Journal of The Franklin Institute. 356, 3, p. 1590-1603

### **Novel Real-Time Model-Based Fault Detection Method for Automatic Identification of Abnormal Energy Performance in Building Ventilation Units**

Bang, M., Engelsgaard, S. S., Alexandersen, E. K., Skydt, M. R., Shaker, H. R. & Jradi, M., 15. Jan 2019, In : Energy and Buildings. 183, p. 238-251

**An Accurate Fault Location Algorithm for Smart Electrical Distribution Systems Equipped with Micro Phasor Measurement Units**

Mirshekali, H., Dashti, R. & Shaker, H. R., 2019, (Accepted/In press) *Proceedings of the 2019 International Symposium on Advanced Electrical and Communication Technologies : ISAECT*. IEEE

**Determining an Accurate Fault Location in Electrical Energy Distribution Networks in the Presence of DGs using Transient Analysis**

Gord, E., Dashti, R., Najafi, M., Santos, A. Q. & Shaker, H. R., 2019, (Accepted/In press) In : *Measurement*.

**Harmonic Interaction Effects on Power Quality and Electrical Energy Measurement System**

de Silva, R. P. B., Quadros, R., Shaker, H. R. & da Silva, L. C. P., 2019, (Accepted/In press) *Proceedings of the 2019 International Symposium on Advanced Electrical and Communication Technologies : ISAECT*. IEEE

**The Optimal Energy Management in the Smart Microgrid Considering Demand Response Program and Energy Storage**

Dorahaki, S., Dashti, R. & Shaker, H. R., 2019, (Accepted/In press) *Proceedings of the 2019 International Symposium on Advanced Electrical and Communication Technologies : ISAECT*. IEEE

**A method for fault detection and diagnostics in ventilation units using virtual sensors**

Mattera, C. G., Quevedo, J., Escobet, T., Shaker, H. R. & Jradi, M., 14. Nov 2018, In : *Sensors*. 18, 11, 3931.

**Comparative Analysis of White-, Gray- and Black-box Models for Thermal Simulation of Indoor Environment: Teaching Building Case Study**

Arendt, K., Jradi, M., Shaker, H. R. & Veje, C., Sep 2018, *Proceedings of the 2018 Building Performance Modeling Conference and SimBuild co-organized by ASHRAE and IBPSA-USA*. ASHRAE, p. 173-180

**Distribution network fault section identification and fault location using artificial neural network**

Dashtdar, M., Dashti, R. & Shaker, H. R., 21. Jun 2018, *Proceedings of 5th International Conference on Electrical and Electronics Engineering*. IEEE, p. 273-278

**Protection Coordination Assessment and Improvement of Electrical Network of an Industrial Complex in Connection to Power Grid: An Experience Report**

Dashti, R., Hassani, S. & Shaker, H. R., 21. Jun 2018, *Proceedings of the 5th International Conference on Electrical and Electronics Engineering*. IEEE, p. 263-268

**Online energy simulator for building fault detection and diagnostics using dynamic energy performance model**

Mattera, C. G., Jradi, M. & Shaker, H. R., 17. May 2018, In : *International Journal of Low-Carbon Technologies*. 13, 3, p. 231-239

**A Holistic Fuzzy Measure for Load Priority in Under Frequency Load Shedding Schemes**

Santos, A. Q., Shaker, H. R. & Jørgensen, B. N., 2018, *Proceedings of the 2018 International Symposium on Advanced Electrical and Communication Technologies (ISAECT)*. Arioua, M., Mohammed, B. & Srifi, M. N. (eds.). IEEE, 6 p.

**A New Matching Algorithm for Fault Section Estimation in Power Distribution Networks**

Dashti, R., Daisy, M., Shaker, H. R. & Tahavori, M., 2018, *Proceedings of the 2018 International Symposium on Advanced Electrical and Communication Technologies: ISAECT*. IEEE, 4 p. 8618797

**Adverse Condition and Critical Event Prediction in Commercial Buildings: Danish Case Study**

Egedorf, S., Shaker, H. R., Martin, R. A. & Jørgensen, B. N., 2018, In : *Energy Informatics*. 1, 19 p., 10.

**Fault Detection and Diagnostics in Ventilation Units Using Linear Regression Virtual Sensors**

Mattera, C. G., Quevedo, J., Escobet, T., Shaker, H. R. & Jradi, M., 2018, *Proceedings of the 2018 International Symposium on Advanced Electrical and Communication Technologies*. Srifi, M. N., Arioua, M. & Mohammed, B. (eds.). IEEE, 6 p. 8618755

**Fault Location in Double Circuit Medium Power Distribution Networks Using an Impedance Based Method**  
Dashti, R., Salehizadeh, S. M., Shaker, H. R. & Tahavori, M., 2018, In : Applied Sciences. 8, 7, 15 p., 1034.

**Impedance-based fault location method for four-wire power distribution networks**  
Dashti, R., Daisy, M., Shaker, H. R. & Tahavori, M., 2018, In : IEEE Access. 6, 1, p. 1342-1349

**A New Computationally Efficient Algorithm for Optimal Sensors and Actuators Placement for Large-Scale Systems**  
Seyed Sakha, M. & Shaker, H. R., 2017, *Proceedings of 4th International IEEE Conference on Control, Decision and Information Technologies*. IEEE Press, p. 1036-1041 (International Conference on Control, Decision and Information Technologies).

**A new data-driven controllability measure with application in intelligent buildings**  
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**A new fault-location method for HVDC transmission-line based on DC components of voltage and current under line parameter uncertainty**  
Daisy, M., Dashti, R. & Shaker, H. R., 2017, In : Electrical Engineering. 99, 2, p. 573-582

**A Practical Approach to Validation of Buildings' Sensor Data: A Commissioning Experience Report**  
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**Adaptive Control for Revolute Joints Robot Manipulator with Uncertain/Unknown Dynamic Parameters and in Presence of Disturbance in Control Input**  
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**Adverse Condition and Critical Event Prediction in Cranfield Multiphase Flow Facility**  
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**Distributed Consensus-Based Economic Dispatch Considering Grid Operation**  
Vergara Barrios, P. P., Shaker, H. R., Jørgensen, B. N. & da Silva, L. C. P., 2017, *Proceedings of the 2017 IEEE Power & Energy Society General Meeting*. IEEE, 5 p. (IEEE Power Engineering Society General Meeting).

**Frequency Interval Cross Gramians for Linear and Bilinear Systems**  
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**Generalization of the  $\lambda$ -method for decentralized economic dispatch considering reactive resources**  
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**On the Existence of Frequency-Interval Gramians for Bilinear Systems**  
Shaker, H. R. & Tahavori, M., 2017, In : European Journal of Control. 47-51, p. 47-51

**Optimal Sensors and Actuators Placement for Large-Scale Unstable Systems via Restricted Genetic Algorithm**  
Seyyed Sakha, M. & Shaker, H. R., 2017, In : Engineering Computations. 34, 8, p. 2582-2597

**Reliability Modeling of Cyber-Physical Systems: A Holistic Overview and Challenges**  
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### **Towards systematic reliability modeling of smart buildings**

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### **Fault detection and diagnosis for smart buildings: State of the art, trends and challenges**

Lazarova-Molnar, S., Shaker, H. R., Mohamed, N. & Jorgensen, B. N., 26. Apr 2016, *Proceedings of the 3rd MEC International Conference on Big Data and Smart City*. IEEE, p. 344-350 7460392

### **A Conceptual Framework for Occupant-Centered Building Management Decision Support System**

Lazarova-Molnar, S. & Shaker, H. R., 2016, *Intelligent Enviroments: Workshop Proceedings of the 12th International Conference on Intelligent Environments*. Novais, P. & Konomi, S. (eds.). IOS Press, p. 436-445 (Ambient Intelligence and Smart Environments, Vol. 21).

### **A new method presentation for locating fault in power distribution networks**

Dashti, R., Daisy, M. & Shaker, H. R., 2016, *Proceedings of the 19th IEEE International Symposium on Electrical Apparatus and Technologies*. IEEE Press, 4 p.

### **Fault Recoverability Analysis via Cross-Gramian**

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### **Frequency interval balanced truncation of discrete-time bilinear systems**

Jazlan, A., Sreeram, V., Shaker, H. R. & Togneri, R., 2016, In : *Cogent Engineering*. 3, 1, 15 p., 1203082.

### **Reliability of Cyber Physical Systems with Focus on Building Management Systems**

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### **Commercial Buildings Energy Performance within Context: *Occupants in Spotlight***

Lazarova-Molnar, S., Kjærgaard, M. B., Shaker, H. R. & Jørgensen, B. N., May 2015, *Proceedings of the 4th International Conference on Smart Cities and Green ICT Systems (SMARTGREENS)*. Helfert, M., Krempels, K-H., Donnellan, B. & Klein, C. (eds.). Institute for Systems and Technologies of Information, Control and Communication, Vol. 1. p. 306-312

### **A Brief Note on the Generalized Singular Perturbation Approximation**

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### **Challenge: Advancing Energy Informatics to Enable Assessable Improvements of Energy Performance in Buildings**

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### **Control configuration selection for bilinear systems via generalised Hankel interaction index array**

Shaker, H. R. & Tahavori, M., 2015, In : *International Journal of Control*. 88, 1, p. 30-37

### **Control Configuration Selection for Multivariable Switched Dynamical Systems and Processes**

Shaker, H. R., 2015, *Proceedings of the 6th International Conference on Modeling, Simulation and Applied Optimization*. IEEE Press, p. 1-4

### **Integration of DG Sources for Compensation of Unbalanced Loads in Power Grid**

Pouresmaeil, E., Shaker, H. R., Veje, C., Shokridehaki, M., M. G. Rodrigues, E. & P. S. Catalão, J., 2015, *Proceeding of IEEE Powertech 2015*. IEEE, p. 1-6

### **Integration of Renewable Energy for the Harmonic Current and Reactive Power Compensation**

Pouresmaeil, E., Shaker, H. R., Mehrasa, M., Shokridehaki, M. A., Rodrigues, E. & Catalão, J. P. S., 2015, *Proceedings of the 5th IEEE International Conference on Power Engineering, Energy and Drives (Powereng2015)*. Best Paper Award. IEEE, p. 31-36

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### **Stability Analysis for Operation of DG Units in Smart Grids**

Pouresmaeil, E., Shaker, H. R., Mehrasa, M., Shokridehaki, M. A., Rodrigues, E. & Catalão, J. P. S., 2015, *Proceedings of the 5th IEEE International Conference on Power Engineering, Energy and Drives*. IEEE, p. 447-452

### **Frequency-Interval Model Reduction of Bilinear Systems**

Shaker, H. R. & Tahavori, M., Jul 2014, In : *IEEE Transactions on Automatic Control*. 59, 7, p. 1948-1953

### **Dynamic modeling of a reformed methanol fuel cell system using empirical data and adaptive neuro-fuzzy inference system models**

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### **Lyapunov stability for continuous-time multidimensional nonlinear systems**

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### **Frequency-interval control reconfigurability for automated processes**

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### **Generalized Hankel Interaction Index Array for Control Structure Selection for Discrete-Time MIMO Bilinear Processes and Plants**

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### **Stability analysis and output feedback control for a class of switched nonlinear systems**

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### **Time-Interval Model Reduction of Bilinear Systems**

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### **Dynamic modeling of a Reformed Methanol Fuel Cell system using empirical data and Adaptive Neuro-Fuzzy Inference System models**

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### **Generalized time-limited balanced reduction method**

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### **Optimal Sensor and Actuator Location for Unstable Systems**

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### **Gas composition modeling in a reformed methanol fuel cell system using adaptive neuro-fuzzy inference systems**

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**Frequency-interval control configuration selection for multivariable bilinear systems**

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**An interaction measure for control configuration selection for multivariable bilinear systems**

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**Generalized frequency-interval balanced model reduction method**

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**Lyapunov stability for continuous-time 2D nonlinear systems**

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**Model Reduction via Time-Interval Balanced Stochastic Truncation for Linear Time Invariant Systems**

Tahavori, M. & Shaker, H. R., 2013, In : International Journal of Systems Science. 44, 3, p. 493-501

**Generalized cross-gramian for linear systems**

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**Control configuration selection for multivariable descriptor systems**

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**Relative Error Model Reduction via Time-Weighted Balanced Stochastic Singular Perturbation**

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**$H_2$  optimal filtering for bilinear systems**

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**Optimal filtering scheme for bilinear discrete-time systems: A linear matrix inequality approach**

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**Upper and lower bounds of frequency interval gramians for a class of perturbed linear systems**

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**Model reduction of switched systems based on switching generalized gramians**

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**Control Configuration Selection for MIMO Nonlinear Systems**

Shaker, H. R. & Komareji, M., 4. Jun 2012, In : Industrial & Engineering Chemistry Research. 51, 25, p. 8583–8587

**Control of a methanol reformer system using an Adaptive Neuro-Fuzzy Inference System approach**

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**Methanol Reformer System Modeling and Control using an Adaptive Neuro-Fuzzy Inference System approach**

Justesen, K. K., Ehmsen, M. P., Andersen, J., Andreasen, S. J., Shaker, H. R. & Sahlin, S. L., 2012.

**Modeling and control of three phase rectifier with electronic smoothing inductor**

Singh, Y. V., Rasmussen, P. O., Andersen, T. O. & Shaker, H. R., 1. Dec 2011, *IECON Proceedings (Industrial Electronics Conference)*. p. 1450-1455 6 p. 6119521

**Control Reconfigurability of Bilinear Hydraulic Drive Systems**

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**Generalised gramian framework for model/controller order reduction of switched systems**

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**Time-Weighted Balanced Stochastic Model Reduction**

Tahavori, M. & Shaker, H. R., 2011, *The 50th IEEE Conference on Decision and Control and European Control Conference*. IEEE Press, p. 7777-7781

**Stability Analysis for a Class of Discrete-Time Two-Dimensional Nonlinear Systems**

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**Accuracy Enhanced Stability and Structure Preserving Model Reduction Technique for Dynamical Systems with Second Order Structure**

Tahavori, M. & Shaker, H. R., 2010, *Annual International Conference on Mechanical Engineering, Sharif University of Technology, Tehran, Iran*.

**Model Reduction of Hybrid Systems**

Shaker, H. R., 2010, Department of Electronic Systems, Aalborg University, Denmark.

**Stability Analysis for a Class of Switched Nonlinear Systems**

Shaker, H. R. & How, J. P., 2010, In : *American Control Conference. Proceedings*. p. 2517 - 2520

**Switched controller order reduction**

Shaker, H. R., Wisniewski, R. & Tabatabaeipour, S., 1. Dec 2009, *2009 IEEE International Conference on Control and Automation, ICCA 2009*. p. 2237-2242 6 p. 5410439

**Switched systems reduction framework based on convex combination of generalized gramians**

Shaker, H. R. & Wisniewski, R., 1. Dec 2009, In : *Journal of Control Science and Engineering*. 2009, 710478.

**"Discussion: model reduction of large-scale discrete plants with specified frequency domain balanced structure" (Zadegan, A., and Zilouchian, A., 2005, ASME J. Dyn. Syst. Meas., Control, 127, pp. 486-498)"**

Shaker, H. R. & Wisniewski, R., 1. Nov 2009, In : *Journal of Dynamic Systems, Measurement and Control*. 131, 6

**Frequency-domain generalized singular perturbation method for relative error model order reduction**

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**Generalized Gramian Framework for Model Reduction of Switched Systems**

Shaker, H. R. & Wisniewski, R., 2009, In : *European Control Conference, 23-26 August 2009, Budapest, Hungary*.

**On Exact/Approximate Reduction of Dynamical Systems Living on Piecewise linear Partition**

Shaker, H. R. & Wisniewski, R., 2009, In : Proceedings of IMACS IFAC Symposium on Mathematical Modeling.

**On Model Reduction of Hybrid Systems**

Shaker, H. R. & Wisniewski, R., 2009, *CICADA workshop on Hybrid Systems and Model Reduction*.

**Frequency-domain balanced stochastic truncation for continuous and discrete time systems**

Shaker, H. R., 1. Apr 2008, In : International Journal of Control, Automation and Systems. 6, 2, p. 180-185 6 p.

**Accuracy and efficiency enhanced nonlinear model order reduction**

Gheisari, Y., Shaker, H. R., Torabi, M. A. & Samavat, M., 1. Dec 2007, *Proceedings of the 2006 IEEE Conference on Computer Aided Control Systems Design, CACSD*. p. 3007-3012 6 p. 4064821

**Frequency domain stochastic balanced truncation: An accuracy enhanced large scale model reduction technique**

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**Improved model predictive control of discrete-time hybrid systems with mixed inputs**

Gholami, M., Salahshoor, K., Tabatabaei-Pour, M., Shaker, H. R. & Alizadeh, T., 1. Dec 2007, *IECON Proceedings (Industrial Electronics Conference)*. p. 744-749 6 p. 4460321

**Accuracy and Efficiency Enhancement in Nonlinear Model Order Reduction**

Shaker, H. R. & Samavat, M., 2007, In : International Journal of Modelling, Identification and Control. 2, 2, p. 147-153

**A clustering-based bounded-error approach for identification of PWA hybrid systems**

Tabatabaei-Pour, M., Gholami, M., Salahshoor, K. & Shaker, H. R., 1. Dec 2006, *9th International Conference on Control, Automation, Robotics and Vision, 2006, ICARCV '06*. 4150167

**A new mixed method for relative error model order reduction**

Shaker, H. R., Tabatabaeepour, M., Samavat, M. & Gharaveisi, A. A., 1. Dec 2006, *Midwest Symposium on Circuits and Systems*. Vol. 2. p. 356-360 5 p. 4267364

**Accuracy and efficiency enhancement in model order reduction of large circuits**

Shaker, H. R., Tabatabaeepour, M., Samavat, M. & Gharaveisi, A. A., 1. Dec 2006, *Midwest Symposium on Circuits and Systems*. Vol. 1. p. 266-270 5 p. 4267125

**Recursive identification of piecewise affine hybrid systems**

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**Accuracy enhancement in HiMAT aircraft controller reduction**

Shaker, H. R. & Samavat, M., 17. Nov 2006, *1st International Symposium on Systems and Control in Aerospace and Astronautics*. Vol. 2006. p. 250-254 5 p. 1627621

**Accuracy Enhanced Model Reduction Technique for Nonlinear Dynamical Systems**

Shaker, H. R. & Samavat, M., 2006, *Proceedings of 2nd Int. Symposium on Chaos and Nonlinear Dynamical Systems*. Iran: Aerospace Research center

**Accuracy Enhancement in Model Reduction and Some Benchmark Examples**

Shaker, H. R. & Samavat, M., 2006, *Proceedings of ASME Int. Conf. on Modeling and Simulation*. Kuala Lumpur, Malaysia

**Frequency-Domain Second Order Structure Preserving Model Reduction**

Shaker, H. R. & Samavat, M., 2006, *Proceedings of 14th International Annual Conference on mechanical Engineering*. Iranian society of mechanical engineering (ISME)



**Accuracy Enhancement in HiMAT Aircraft Controller Reduction Using a Recently Developed Balanced Technique**  
Shaker, H. R. & Samavat, M., 2005, In : Int. J. of Automatic Control and System Engineering. 5, 4, p. 31-36

## Prizes

**Best poster award in International Conference on Medium and High Temperature PEM Fuel Cells,**  
Hamid Reza Shaker (Recipient), 2012

### IEEE Senior Member

Hamid Reza Shaker (Recipient), 2018

**Winner of best poster award in International Conference on Medium and High Temperature PEM Fuel Cells,**  
Hamid Reza Shaker (Recipient), 2012

**Winner of the Best Paper Award at 5th IEEE International Conference on Power Engineering, Energy and Drives (Powereng2015)**

Hamid Reza Shaker (Recipient), 2015

**Winner of the Best Paper Award at IEEE International Conference on Big Data and Smart City,**  
Hamid Reza Shaker (Recipient), 2016

**Winner of the best poster award in Fuel Cells Science Technology**

Hamid Reza Shaker (Recipient), 2012

## Activities

**Advances in Mechanical Engineering (Journal)**

Hamid Reza Shaker (Editor)

Jan 2015 → ...

**2nd International Conference on Mechatronics and Robotics Engineering**

Hamid Reza Shaker (Organizer)

2015 → 2016

**International Journal of System Control and Information Processing (Journal)**

Hamid Reza Shaker (Editor)

2014 → ...

**Project proposals/research grant applications for researchers and PhD students at SDU**

Hamid Reza Shaker (Participant)

2014

**Systems Science & Control Engineering (Journal)**

Hamid Reza Shaker (Editor)

2012 → ...

**Hovedvejlederkursus for ph.d.-vejledere / Course for ph.d.-supervisors**

Hamid Reza Shaker (Participant)

2011

**Problem Based Learning (PBL)**  
Hamid Reza Shaker (Participant)  
2011

**University Pedagogy for Assistant Professors**  
Hamid Reza Shaker (Participant)  
2010 → 2012

**Massachusetts Institute of Technology**  
Hamid Reza Shaker (Visiting researcher)  
1. Jul 2009 → 1. Jan 2010

**Basic Course in Pedagogy for University Teachers**  
Hamid Reza Shaker (Participant)  
2009

## **Pedagogical view: Educational practice - Basis/values**

We live in a rapidly changing world witnessing breakthroughs in the different areas of science and technology. We are facing a lot of new challenges and new opportunities. It is consequently important to prepare our students to meet the challenges. As a university teacher, I have a unique opportunity to play such role for my students at a formative time in their lives. I see my teaching role as a mentor to facilitate learning and to prepare them for what lies beyond their graduation date, regardless of the career path they choose. I enjoy helping students appreciate how the material learned in the classroom, the projects, the workshops, the discussions and even my informal conversations can help to solve real-world problems, and I enjoy more observing the excitement that such knowledge generates. In my teaching, I try my best to facilitate interdisciplinary learning and peer learning. I use different style of teaching ranging from teaching in the workshops, teaching using virtual environments to ordinary classroom face2face lecturing. I personally believe that the combination of the methods with a proper weight works the best. Feedback from students has been vital to the process of growth I have undergone since I began teaching. I learned from feedbacks, not only because "Who Dares to Teach Must Never Cease to Learn", but also because getting feedbacks allows making adjustments needed by students in the class before the end of the semester and will foster a feeling among the students that you care about your teaching. Often minor adjustments can make a huge difference in the learning. Personal contact with students is essential to my approach. Many need encouragement to talk to their teachers, so I emphasize my availability for informal discussion and my willingness to help them sort out any problems they have with what they are learning.

## **Pedagogical Education**

- Two-year Course of "University Pedagogy for Assistant Professors", Aalborg University, Denmark , 2010-2012.
- Course / workshop on "intercultural classroom", Aalborg University,Denmark, 2012.
- Hovedvejlederkursus for ph.d.-vejledere / Course for PhD-supervisors, Aalborg University, Denmark, 2011.
- Problem Based Learning (PBL), Aalborg University , Denmark, 2010.
- Basic Course in Pedagogy for University Teachers, Aalborg University, Denmark, 2009.

## **Teaching experience**

Lectured, designed lesson plans, homework assignments, and exams for the following courses:

- BSc courses:

Mechatronics 2, Aalborg University, Aalborg, Denmark (2011-2012).  
Cybernetics, Norwegian University of Science and Technology, Norway (2013).  
Feedback Control Systems, Norwegian University of Science and Technology, Norway (2013).  
Control Engineering, University of Southern Denmark, Odense, Denmark (2014-present).  
Engineering Optimization, University of Southern Denmark,Odense, Denmark (2017-2018).

- MSc courses:

Linear Optimal Control, Aalborg University, Aalborg, Denmark (2010).  
State-Space Control, Aalborg University, Aalborg, Denmark (2010-2012).  
Stochastic Process, Aalborg University, Aalborg, Denmark (2011-2013).  
Multivariable and Nonlinear Control Methods, Aalborg University, Aalborg, Denmark (2012-2013)

Dynamics and Control of processes and systems, University of Southern Denmark, Odense, Denmark (2015-present).

Modeling and Optimization of Energy Processes, University of Southern Denmark , Odense, Denmark (2016-present).

Data-Based Modeling Methods, University of Southern Denmark, Odense, Denmark (2015).

Fault Detection and Diagnosis in Engineering Systems, University of Southern Denmark, Odense, Denmark (2016, 2019).

System Identification, Aalborg University , Aalborg, Denmark (2011-2012).

Fuzzy Logic and Neural Networks, Aalborg University, Aalborg, Denmark (2011-2012).

- PhD course:

Efficient Modeling and Control of Complex Systems, Aalborg University , Aalborg, Denmark (2011-2013).

Supervised and mentored students and junior researchers. Held regular office hours and supervisory meetings, evaluated the performance for several projects and education programs. The project are mainly related to modeling, optimization and control with application area within Energy Technology, Smart Grid and Mechatronics.