

Aslak Johansen  
The Maersk Mc-Kinney Moller Institute  
SDU Software Engineering  
Email: asjo@mmmi.sdu.dk  
Phone: +4565502534

## Teaching Philosophy

For me, university-level teaching is about inspiring students and provide them with the necessary support so that they can (ideally) find their own path to understanding of the subjects at hand. Informing practical knowledge through theory and experimentation, and using the scientific method as an arbiter is key to this.

## Employment

### The Maersk Mc-Kinney Moller Institute

Odense M  
29. Sept 2023 → present

### Associate Professor

SDU Software Engineering  
29. Sept 2023 → present

### Postdoc

IT University of Copenhagen  
København, Denmark  
1. Jan 2013 → 1. Jan 2014

## Research outputs

### Prognostic considering missing data: An input output hidden Markov model based solution

Shahin, K. I., Simon, C., Weber, P., Johansen, A. & Kjærgaard, M. B., Oct 2023, In: Proceedings of the Institution of Mechanical Engineers, Part O: Journal of Risk and Reliability. 237, 5, p. 980-993

### OPM: An Ontology-Based Package Manager for Building Operating Systems

Hviid, J., Johansen, A., Sangogboye, F. C. & Kjærgaard, M. B., 8. Mar 2022, *11th International Conference on the Internet of Things, IoT 2021 - Conference Proceedings*. Association for Computing Machinery, p. 118-125

### Service Portability and Information Discovery in Building Operating Systems using Semantic Modeling

Hviid, J., Johansen, A., Fierro, G. & Kjærgaard, M. B., 8. Mar 2022, *11th International Conference on the Internet of Things, IoT 2021 - Conference Proceedings*. New York: Association for Computing Machinery, p. 110-117

### A Research Setup Demonstrating Flexible Industry 4.0 Production

Jepsen, S. C., Worm, T., Johansen, A., Lazarova-Molnar, S., Kjærgaard, M. B., Kang, E. Y., Friederich, J., Heredia Mena, J. E., Soltani, R., Sorensen, S. L. & Hjort Schwee, J., 13. Sept 2021, *2021 International Symposium ELMAR*. Mustra, M., Vukovic, J. & Zovko-Cihlar, B. (eds.). IEEE, p. 143-150 (Proceedings Elmar - International Symposium Electronics in Marine, Vol. 2021-September).

### A digital twin framework for improving energy efficiency and occupant comfort in public and commercial buildings

Clausen, A., Arendt, K., Johansen, A., Sangogboye, F. C., Kjærgaard, M. B., Veje, C. T. & Jørgensen, B. N., Sept 2021, In: *Energy Informatics*. 4, Suppl. 2, 19 p., 40.

### Ontology-Based Modeling of Privacy Vulnerabilities for Data Sharing

Schwee, J. H., Sangogboye, F. C., Johansen, A. & Kjærgaard, M. B., Mar 2020, *Privacy and Identity Management. Data for Better Living: AI and Privacy*. Friedewald, M., Önen, M., Lievens, E., Krenn, S. & Fricker, S. (eds.). Springer, Vol. 576. p. 109-125 (IFIP Advances in Information and Communication Technology).

### **Dynamic Energy Model-Based Automatic Building Performance Testing for Continuous Commissioning**

Jradi, M., Liu, N., Johansen, A., Arendt, K., Mattera, C. G., Kjærgaard, M. B., Veje, C. & Jørgensen, B. N., 2020, *Proceedings of building simulation 2019: 16th IBPSA International conference and exhibition*. Corrado, V., Fabrizio, E., Gasparella, A. & Patuzzi, F. (eds.). International Building Performance Simulation Association, p. 822-829 (Building Simulation Conference Proceedings).

### **Multi-Objective Model Predictive Control Framework for Buildings**

Arendt, K., Clausen, A., Mattera, C. G., Jradi, M., Johansen, A., Veje, C., Kjærgaard, M. B. & Jørgensen, B. N., 2020, *Proceedings of building simulation 2019: 16th IBPSA International conference and exhibition*. Corrado, V., Fabrizio, E., Gasparella, A. & Patuzzi, F. (eds.). International Building Performance Simulation Association, p. 2779-2786 (Building Simulation Conference Proceedings).

### **Combining Performance Testing and Metadata Models to Support Fault Detection and Diagnostics in Smart Buildings**

Markoska, E., Johansen, A., Kjærgaard, M. B., Lazarova-Molnar, S., Jradi, M. & Jørgensen, B. N., Sept 2019, In: *Applied System Innovation*. 2, 3, 19 p., 28.

### **Enabling auto-configuring building services: The road to affordable portable applications for smart grid integration**

Hviid, J., Johansen, A., Sangogboye, F. C. & Kjærgaard, M. B., 15. Jun 2019, *Proceedings of the 10th ACM International Conference on Future Energy Systems*. New York: Association for Computing Machinery, p. 68-77

### **Room-level occupant counts and environmental quality from heterogeneous sensing modalities in a smart building**

Schwee, J. H., Johansen, A., Jørgensen, B. N., Kjærgaard, M. B., Mattera, C. G., Sangogboye, F. C. & Veje, C., 2019, In: *Scientific Data*. 6, 11 p., 287.

### **Evaluation of the Opportunities and Limitations of Using IFC Models as Source of Building Metadata**

Lange, H., Johansen, A. & Kjærgaard, M. B., 7. Nov 2018, *Proceedings of the 5th Conference on Systems for Built Environments*. Ramachandran, G. S. & Batra, N. (eds.). Association for Computing Machinery, p. 21-24

### **FloorViz - a Bricked Dashboard: Demo Abstract**

Johansen, A. & Kjærgaard, M. B., 7. Nov 2018, *Proceedings of the 5th Conference on Systems for Built Environments*. Ramachandran, G. S. & Batra, N. (eds.). Association for Computing Machinery, p. 186-187

### **Room-level Occupant Counts, Airflow and CO2 Data from an Office Building**

Arendt, K., Johansen, A., Jørgensen, B. N., Kjærgaard, M. B., Mattera, C. G., Sangogboye, F. C., Schwee, J. H. & Veje, C., 4. Nov 2018, *Proceedings of the First Workshop on Data Acquisition To Analysis*. Association for Computing Machinery, p. 13-14

### **A Framework for Fully Automated Performance Testing for Smart Buildings**

Markoska, E., Johansen, A. & Lazarova-Molnar, S., Oct 2018, *Third International Congress on Information and Communication Technology: ICICT 2018, London*. Yang, X.-S., Sherratt, S., Dey, N. & Joshi, A. (eds.). Springer, p. 235-243 (Advances in Intelligent Systems and Computing, Vol. 797).

### **Metafier - a Tool for Annotating and Structuring Building Metadata**

Holmegaard, E., Johansen, A. & Kjærgaard, M. B., 26. Jun 2018, *Proceedings of the 2017 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computed, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovation*. IEEE, p. 1-8 p.

### **Demand Response with Model Predictive Comfort Compliance in an Office Building**

Nellemann, P., Kjærgaard, M. B., Holmegaard, E., Arendt, K., Johansen, A., Sangogboye, F. C. & Jørgensen, B. N., 17. Apr 2018, *Proceedings of the 2017 IEEE International Conference on Smart Grid Communications*. IEEE, p. 351-356

### **Brick : metadata schema for portable smart building applications**

Balaji, B., Bhattacharya, A., Fierro, G., Gao, J., Gluck, J., Hong, D., Johansen, A., Koh, J., Ploennigs, J., Agarwal, Y., Berges, M., Culler, D., Gupta, R., Kjærgaard, M. B., Srivastava, M. & Whitehouse, K., 23. Feb 2018, In: *Applied Energy*. 226, p. 1273-1292

### **Demonstrating OccuRE: An Occupancy REasoning Platform for Occupancy-driven Applications: Demo Abstract**

Sangogboye, F. C., Johansen, A., Holmegaard, E. & Kjærgaard, M. B., 16. Nov 2016, *Proceedings of the 3rd ACM International Conference on Systems for Energy-Efficient Built Environments*. Association for Computing Machinery, p. 215-216

### **Portable Queries Using Brick Schema for Building Applications: Demo Abstract**

Balaji, B., Bhattacharya, A., Fierro, G., Gao, J., Hong, D., Johansen, A., Koh, J., Ploennigs, J., Agarwal, Y., Berges, M., Culler, D., Gupta, R., Kjærgaard, M. B., Srivastava, M. & Whitehouse, K., 16. Nov 2016, *Proceedings of the 3rd ACM International Conference on Systems for Energy-Efficient Built Environments*. Association for Computing Machinery, p. 219-220 2 p.

### **Brick: Towards a Unified Metadata Schema For Buildings**

Balaji, B., Bhattacharya, A., Fierro, G., Gao, J., Gluck, J., Hong, D., Johansen, A., Koh, J., Ploennigs, J., Agarwal, Y., Berges, M., Culler, D., Gupta, R., Kjærgaard, M. B., Srivastava, M. & Whitehouse, K., 2016, *Proceedings of the 3rd ACM International Conference on Systems for Energy-Efficient Built Environments*. Association for Computing Machinery, p. 41-50

### **Demand Response in Commercial Buildings with an Assessable Impact on Occupant Comfort**

Kjærgaard, M. B., Arendt, K., Clausen, A., Johansen, A., Jradi, M., Jørgensen, B. N., Nellesmann, P., Sangogboye, F. C., Veje, C. & Wollsen, M. G., 2016, *Proceedings of the 7th IEEE International Conference on Smart Grid Communications*. IEEE, p. 447-452 6 p.

### **OccuRE: an Occupancy REasoning Platform for Occupancy-driven Applications**

Kjærgaard, M. B., Johansen, A., Sangogboye, F. C. & Holmegaard, E., 2016, *Proceedings of the 19th International ACM SIGSOFT Symposium on Component-Based Software Engineering*. IEEE Press, p. 39-48

### **Towards a Metadata Discovery, Maintenance and Validation Process to support Applications that improve the Energy Performance of Buildings**

Holmegaard, E., Johansen, A. & Kjærgaard, M. B., 2016, *Proceedings of the 2016 IEEE International Conference on Pervasive Computing and Communication Workshops*. IEEE Press, p. 1-6

## **Teaching and supervision**

### **A Case Study of the Viability of Elixir as a Backend Language**

Johansen, A.  
01/09/2021 → 01/06/2022

### **Agricultural Surveillance and Monitoring**

Johansen, A.  
01/02/2021 → 30/06/2021

### **AI Assisted Image Processing Platform**

Johansen, A.  
01/02/2021 → 30/06/2021

### **Anomaly Detection in Data Streams**

Johansen, A.  
03/02/2020 → 30/06/2020

### **Applying Augmented Reality to Building Instrumentation and Internet-of-Things**

Johansen, A.  
01/02/2021 → 30/06/2021

### **Automatic In-Stream Unit Conversion**

Johansen, A.  
01/02/2021 → 30/06/2021

### **Bachelor Project: BossWave Plugin for NETx BMS Server**

Johansen, A.  
03/09/2018 → 02/01/2019

### **Bid behaviour prediction of Autorola auction customers**

Johansen, A.  
02/09/2019 → 01/01/2020

### **Brick Maps - An Intuitive Indoor Location Application**

Johansen, A.  
02/09/2019 → 01/06/2020

### **Continuous Integration and Deployment of Markdown Documentation to Confluence**

Johansen, A.  
01/02/2022 → 01/06/2022

### **Data Management**

Johansen, A.  
03/02/2020 → ...

### **Decentralized Agent-Based Negotiation For Power Grid Stabilization**

Johansen, A.  
01/09/2022 → 01/06/2023

### **Decentralized Distributed Energy Balancing in State-Scale Power Grids: A Packetized Energy Management Approach**

Johansen, A.  
01/02/2023 → 01/06/2023

### **Demand-Driven Publish-Subscribe**

Johansen, A.  
01/09/2022 → 01/06/2023

### **Distributions- og integrationsteknologier**

Johansen, A.  
24/10/2016 → 24/10/2016

### **Environmental Monitoring from Location to Cloud**

Johansen, A.  
01/02/2023 → 01/06/2023

### **Extending the Autonomous Units Robot Platform to Support Remote Logging**

Johansen, A.  
01/09/2021 → 03/01/2022

### **Green Cloud: Emissions as a Design Priority**

Johansen, A.  
01/02/2023 → 01/06/2023

### **IoT and Cathodic Protection in the Gas Industry: Adoption and Impact**

Johansen, A.  
01/02/2023 → 01/06/2023

### **IoT Auto-configuration**

Johansen, A.  
02/09/2019 → 01/06/2020

### **IoT Auto-configuration Using An Information Model**

Johansen, A.  
03/02/2020 → 01/01/2021

### **Locating vehicles in multi-storied parking complexes.**

Johansen, A.  
01/02/2019 → 03/06/2019

### **LoRa-Based Uplink Infrastructure for Sensor Data**

Johansen, A.  
01/02/2022 → 01/06/2022

### **Low-Latency Context Synchronization For Edge Computing and Anomaly Detection**

Johansen, A.  
01/02/2023 → 01/06/2023

### **Make Media Credible Again**

Johansen, A.  
01/09/2022 → 01/06/2023

### **Objektorienteret Programmering**

Johansen, A.  
01/08/2018 → 17/01/2020

### **Privacy-Preserving Monitoring of Occupants**

Johansen, A.  
01/02/2022 → 01/06/2022

### **Real-Time Aeroplane Position Streaming Platform**

Johansen, A.  
01/02/2023 → 01/06/2023

### **Software Engineering of Internet of Things**

Johansen, A.  
06/02/2019 → ...

### **Software Tool for construction of Building Metadata Models**

Johansen, A.  
01/02/2018 → 01/06/2018

### **SPARQL Visualisation Tool**

Johansen, A.  
01/02/2021 → 30/06/2021

### **System Observability for Danish Software Companies Using Distributed Architectures**

Johansen, A.  
01/02/2021 → 30/06/2021

### **Toolchain for Lifecycle Management of MachineLearning for Image Conditioning**

Johansen, A.  
01/09/2021 → 01/06/2022

### **Ubiquitous Computing and Internet of Things**

Johansen, A.  
02/02/2018 → 25/05/2018

### **Using a Service Mesh to Observe the Inaccessible**

Johansen, A.  
01/02/2022 → 01/06/2022

### **Visualization and analysis of network-based devices.**

Johansen, A.  
03/02/2020 → 30/06/2020