

# Robin Roche

Université Bourgogne Franche-Comté (UBFC) / UTBM / FEMTO-ST  
Postal address: UTBM 90010 Belfort cedex – France  
+33 (0)3 84 58 34 79 | robin.roche@utbm.fr | robinroche.com

## Education

**Ph.D.** in Electrical Engineering, UTBM, 2012  
Visiting scholar at Colorado State University (U.S.A., 2012 and 2013)

**Diplôme d'Ingénieur** (M.Eng.) in Electrical Engineering, UTBM, 2009  
Double minor in Innovation strategies and International careers  
Internships at TRUMPF (Switzerland, 2007) and AUDI (Germany, 2009), exchange semester at KAIST (South Korea, 2008)

## Current position

**Maitre de Conférences** (Associate Professor, tenured, CNU section 63), UTBM, since 2013

- Research laboratory: FEMTO-ST Institute (UMR CNRS 6174), Energy department, SHARPAC group
- Member of the FCLAB research federation (FR CNRS 3539)
- Teaching at UTBM's Energy department: courses on electric power systems and energy economics
- Teaching at UBFC's SPIM doctoral school: course on hybrid energy systems
- Awarded the Prime d'Encadrement Doctoral et de Recherche (PEDR) since 2017

## Current research activities

### Research interests

- Electric power systems, microgrids, cyber-physical energy systems
- Energy management, renewable energy and storage integration, system resilience, sizing
- Hydrogen storage, fuel cells and electrolyzers integration, diagnostics and prognostics
- Agent-based control systems, optimization, co-simulation

### Selected responsibilities

- Appointed member of the Conseil National des Universités (CNU)
- Head of Ph.D. student activities for GDR CNRS SEEDS
- Chair of the microgrids group at FEMTO-ST / SHARPAC
- Co-chair of the microgrids working group (GT) of GDR CNRS SEEDS
- Adviser of several Ph.D. and Master's students at FEMTO-ST

### Selected current projects

- HAEOLUS: Hydrogen-aeolic energy with optimised electrolyzers upstream of substation – H2020 project, 2018-2021
- MEANS4SG: Metrology excellence academic network for smart grids – H2020 ITN project, 2016-2019
- DATAZERO: Renewable energy-powered datacenter – ANR project, 2015-2019

### Selected Publications

1. B. Celik, **R. Roche**, D. Bouquain, and A. Miraoui, "Decentralized neighborhood energy management with coordinated smart home energy sharing". Accepted for publication in IEEE Transactions on Smart Grid. DOI: 10.1109/TSG.2017.2710358.
2. B. Celik, **R. Roche**, S. Suryanarayanan, D. Bouquain, and A. Miraoui, "Electric energy management in residential areas through coordination of multiple smart homes." *Renewable & Sustainable Energy Reviews* (Elsevier), vol. 80, pp. 260–275, December 2017. DOI: 10.1016/j.rser.2017.05.118.
3. B. Li, **R. Roche**, and A. Miraoui, "Microgrid sizing with combined evolutionary algorithm and MILP unit commitment." *Applied Energy* (Elsevier), vol. 188, pp. 547–562, February 2017. DOI: 10.1016/j.apenergy.2016.12.038.
4. S. Suryanarayanan, **R. Roche**, and T. Hansen (eds.), *Cyber-Physical-Social Systems and Constructs in Electric Power Engineering*, The Institution of Engineering and Technology (IET) Press, October 2016. ISBN: 978-1-84919-936-0.
5. T. Hansen, **R. Roche**, S. Suryanarayanan, A.A. Maciejewski, and H.J. Siegel, "Heuristic Optimization for an Aggregator-based Resource Allocation in the Smart Grid." *IEEE Transactions on Smart Grid*, vol. 6, no. 4, pp. 1785–1794, June 2015. DOI: 10.1109/TSG.2015.2399359.
6. A. Zipperer, P. Aloise-Young, S. Suryanarayanan, **R. Roche**, L. Earle, D. Christensen, P. Bauleo, and D. Zimmerle, "Electrical Energy Management in the Smart Home: Perspectives on Enabling Technologies and Consumer Behavior." *Proceedings of the IEEE*, vol. 101, no. 11, pp. 2397–2408, November 2013. DOI: 10.1109/JPROC.2013.2270172.