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Research Area

Smart Grids, Energy Informatics, Non-Intrusive Load Monitoring, Energy Management, Sensor Networks, and Smart Microgrids

Publications

Journals

1. M. R. Tahir, A. Amin, A. A. Baig, S Manzoor, A. U. Haq, M. A. Asghar, W. A. Gulzar, Design and optimization of Grid Integrated Hybrid Onsite Energy Generation system for Rural Areas in AJK Pakistan using Homer Software, *AIMS Energy* (2021)
2. T. Kausar, A. Kausar, M. A. Ashraf, M.F. Siddique, M. Wang, M. Sajid, MZ. Siddique, **A. U. Haq**, M. Imran, SA-GAN: Stain Acclimation Generative Adversarial Network for Histopathology Image Analysis, submitted in *Applied Sciences (Special Issue: Bio-Medical Engineering)*
3. **A. U. Haq**, B. A. Degenhart, M. B. Heravi, Nikola Dinev, and H.-A. Jacobsen, "Analysis of lossless compression algorithms and selective compressed sensing approach for non-intrusive load monitoring," in submission (*IEEE Access*)
4. Thomas Kriechbaumer, Matthias Kahl, Daniel Jorde, **A. U. Haq,** and Hans-Arno Jacobsen. Large-Scale Data Acquisition Systems Architecture for High-Frequency Electrical Energy Metering. submitted to the *Transactions on Cyber-Physical Systems*
5. Malik, R.,; Alam, M.; Hussain, R.; Ali, A.; Muhammad, S.; Akram, N.; Duraihem, F. Z.,**A. U. Haq**. Statistically inspired multi-shift Arnoldi projection for on-chip interconnects, *Mathematics and Computers in Simulation 2021*, 190, Pages 418-428, ISSN 0378-4754, https://doi.org/10.1016/j.matcom.2021.05.025
6. Akram, N.; Alam, M.; Hussain, R.; Ali, A.; Muhammad, S.; Malik, R.; **A. U. Haq**. Passivity Preserving Model Order Reduction Using the Reduce Norm Method. *Electronics* 2020, *9*, 964. https://doi.org/10.3390/electronics9060964
7. Alam, M., Mahmood, A., Azam, S., Butt, M. S., **A. U. Haq**., and Massoud, Y. (2019). Impedance model of cylindrical nanowires for metamaterial applications. Nanomaterials, 9(8), 1104
8. M. Kahl, V. Krause, R. Hackenberg, **A. U. Haq**, et al. "Measurement system and dataset for in-depth appliance energy consumption analysis in industrial environments." In: tm-technisches messen (2019). DOI: 10.1515/teme-2018-0038
9. **A. U. Haq** and H.-A. Jacobsen. "Prospects of appliance-level load monitoring in off-the-shelf energy monitors: A technical review." In: Energies 11.1 (2018), p. 189. DOI: 10.3390/en11010189.

Conferences

1. Matthias Kahl, **Anwar Ul Haq**, Thomas Kriechbaumer, and Hans-Arno Jacobsen, "A Comprehensive Feature Study for Appliance Recognition on High Frequency Energy Data", in Proceedings of the Eighth International Conference on Future Energy Systems. ACM, 2017.

2. Matthias Kahl, **Anwar Ul Haq**, Thomas Kriechbaumer, and Hans-Arno Jacobsen. "Appliance Classification Across Multiple High Frequency Energy Datasets" in 2017 IEEE International Conference on Smart Grid Communications (SmartGridComm) held in Dresden, Germany, Oct'17.
3. **Anwar Ul Haq**, Thomas Kriechbaumer, Matthias Kahl, and Hans-Arno Jacobsen, "CLEAR - A Circuit Level Electric Appliance Radar" in 18th International Conf. on Industrial Technology (ICIT), on 22-25th March, 2017 in Toronto, Canada.
4. Thomas Kriechbaumer, **Anwar Ul Haq**, Matthias Kahl, and Hans-Arno Jacobsen. "MEDAL: A Cost-Effective High-Frequency Energy Data Acquisition System for Electric Appliances". in Proceedings of ACM e-Energy, Hong Kong, May'17.
5. Matthias Khal, Christoph Goebel, **Anwar Ul Haq**, and Hans-Arno Jacobsen, "NoFaRe: A Non-Intrusive Facility Resource Management System" in D-A-CH Energy Informatics Conference 2015 on 12-13th November 2015 in Karlsruhe, Germany.
6. Joung-Han Lee, In-Ho Choi, **Anwar Ul Haq**, and Seung Ho Hong "Design of Demand Response Module for Smart Grid" in 3rd International Conference on Advanced Computer Theory and Engineering (ICACTE), on 20-22 Aug., 2010.
7. **Anwar Ul Haq**, and Seung Ho Hong "Game-Theoretic Group Bargaining Concept for WSN-based DR in Buildings" in KIEE Conference on Information and Control, pp.165-166 on 20-22 October. 2011 at Gyeongju, Korea.

Workshops and Posters

1. **Anwar Ul Haq**, and Hans-Arno Jacobsen, "Non-Intrusive Load Monitoring for Appliance Event Detection and Load Signature Extraction from Aggregate Load" in 7th PhD-Workshop on Energy Informatics September 26-27, 2016 in Klagenfurt, Austria.
2. Matthias Kahl, **Anwar Ul Haq**, Thomas Kriechbaumer, and Hans-Arno Jacobsen, "WHITED-A Worldwide Household and Industry Transient Energy Data Set", in 3rd Intl. Workshop on Non-Intrusive Load Monitoring (NILM) held on 14-15 May 2016, BC, Canada
3. Poster presentation in
   - TUM Energy Colloquium 2014, 2015, and 2016 held at TUM Institute of Advanced Studies, Munich Germany
   - 5th DACH+ Energy Informatics International Conference held at Klagenfurt Austria on 29-30th September, 2016
   - ACM e-Energy conference held at Phoenix Convention Center, Phoenix, AZ on 27th June, 2019

Book Chapters

1. Jacobsen, H.A., Katz, R.H., Schmeck, H. and Goebel, C., 2015. Smart buildings and smart grids (Dagstuhl Seminar 15091). In *Dagstuhl Reports* (Vol. 5, No. 2). *Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik.*
   - Smart Commercial Buildings
   - Smart Residential Buildings
   - Data Crosscut
2. **Anwar Ul Haq**, Mengmeng Yu and Seung Ho Hong," Design Concept for DR Algorithm in Smart Grid" in 2012 International Conference on Future Electrical Power and Energy Systems (ICFEPES) pp

326-332 on 21-22 Feb., 2012 at Sanya China. Also published in **Lecture Notes in Information Technology, Volume 9** *IERI***, USA**.