

Publication List of Wilfried Elmenreich

Journal Papers

- [1] Daniel Rieder, Joey Louis, and Wilfried Elmenreich. Life cycle assessment of portable charging technologies – a case study of a solar charger and a power bank. *International Journal of Life Cycle Assessment*, 2025.
- [2] Hafsa Bousbiat, Anthony Faustine, Christoph Klemenjak, Lucas Pereira, and Wilfried Elmenreich. Unlocking the full potential of neural NILM: On automation, hyperparameters & modular pipelines. *IEEE Transactions on Industrial Informatics*, pages 1–9, 9 2022.
- [3] Franzisca Weder, Renate Hbner, Wilfried Elmenreich, Robert Sposato, and Stefanie Mertl. Re-framing sustainability in a pandemic. understanding sustainability attitudes, behaviors, visions and responsibilities for a post-covid future. *Journal of Sustainability Research*, 6 2022.
- [4] Khalil Alrahman Youssefi Darmian, Modjtaba Rouhani, Habib Rajabi Mashhadi, and Wilfried Elmenreich. A swarm intelligence-based robotic search algorithm integrated with game theory. *Applied Soft Computing*, 122, 4 2022.
- [5] Franzisca Weder, Jennifer Yarnold, Stefanie Mertl, Rentate Hübner, Wilfried Elmenreich, and Robert Sposato. Social learning of sustainability in a pandemicchanges to sustainability understandings, attitudes, and behaviors during the global pandemic in a higher education setting. *Sustainability*, 14(6):1–18, 2022.
- [6] H. Bousbiat, G. Leitner, and W. Elmenreich. Ageing safely in the digital era: A new unobtrusive activity monitoring framework leveraging on daily interactions with hand-operated appliances. *Sensors*, 22(4), 2022.
- [7] Sascha Einspieler, Nirmal Rathakrishnan, Arpitha Prabhakara, Benjamin Steinwender, and Wilfried Elmenreich. High accuracy software-based clock synchronization over CAN. *IEEE Transactions on Systems, Man, and Cybernetics*, July 2021.
- [8] Sascha Einspieler, Benjamin Steinwender, and Wilfried Elmenreich. Mixed-triggered communication with limited elastic slot boundaries. *Microprocessors and Microsystems*, 86, October 2021.
- [9] Franz Rauch, Wilfried Elmenreich, Renate Hübner, Michael Jungmeier, Ema Gračner, and Robert G. Sposato. Sustainable development and education. *The Journal of Action Research and Innovation in Science Education*, 4(1), 2021.
- [10] Aida Mehdipour Pirbazari, Ekanki Sharma, Antorweep Chakravorty, Wilfried Elmenreich, and Chunming Rong. An Ensemble Approach for Multi-Step Ahead Energy Forecasting of Household Communities. *IEEE Access*, 3 2021.
- [11] Tamer Khatib, Haneen Alwaneh, Wajdi Mabroukeh, Yassmin Abu-Ghalion, Fatima Abu-Gadi, Aliaa Assali, Wilfried Elmenreich, and Muna Zarour. Development of DAYSAM: An Educational Smart Phone Game for Preschoolers to Increase Awareness of Renewable Energy. *Sustainability*, 13(1):1–23, 1 2021.
- [12] Christoph Klemenjak, Stephen Makonin, and Wilfried Elmenreich. Investigating the performance gap between testing on real and denoised aggregates in non-intrusive load monitoring. *Energy Informatics*, 4, 2021.
- [13] Melanie Schranz, Gianni di Caro, Thomas Schmickl, Wilfried Elmenreich, Farshad Arvin, Ahmet Sekercioglu, and Micha Sende. Swarm intelligence and cyber-physical systems: Concepts, challenges and future trends. *Swarm and Evolutionary Computation*, 60, 2021.
- [14] Midhat Jdeed, Melanie Schranz, and Wilfried Elmenreich. A study using the low-cost swarm robotics platform spiderino in education. *Computers and Education Open*, 2020.
- [15] Heiko Hamann, Melanie Schranz, Wilfried Elmenreich, Vito Trianni, Carlo Pincioli, Nicolas Bredeche, and Eliseo Ferrante. Editorial: Designing self-organization in the physical realm. *Frontiers in Robotics and AI*, 7(164), 2020.
- [16] Melanie Schranz, Micha Sende, Martina Umlauft, and Wilfried Elmenreich. Swarm robotic behaviors and current applications. *Frontiers in Robotics and AI*, 7(36), 2020.
- [17] Christoph Klemenjak, Christoph Kovatsch, Manuel Herold, and Wilfried Elmenreich. A synthetic energy dataset for non-intrusive load monitoring in households. *Scientific Data*, 7(1):1–17, 2020.
- [18] Wilfried Elmenreich, Philipp Moll, Sebastian Theuermann, and Mathias Lux. Making simulation results reproducible - Survey, guidelines, and examples based on Gradle and Docker. *PeerJ Computer Science*, 5(e240):1–27, Dezember 2019.
- [19] Jelenko Karpić, Ekanki Sharma, Tamer Khatib, and Wilfried Elmenreich. Comparison of solar power measurements in alpine areas using a mobile dual-axis tracking system. *Energy Informatics*, 2(Suppl 1)(23):1–14, September 2019.
- [20] H. T. Haider, D. H. Muhsen, H. I. Shahadi, O. H. See, and W. Elmenreich. Dynamic smart grid communication parameters based cognitive radio network. *Acta Polytechnica*, 59(3):248–259, 2019.
- [21] M. Sende, D. Conzon, A. Pitman, M. Schranz, E. Ferrara, M. Jdeed, C. Pastrone, and W. Elmenre-

- ich. Scalable distributed simulation for evolutionary optimization of swarms of cyber-physical systems. *International Journal on Advances in Systems and Measurements*, 12(1 & 2), 2019.
- [22] A. Ibrahim, T. Khatib, A. Mohamed, and W. Elmenreich. Modeling of the output current of a photovoltaic grid-connected system using random forests technique. *Energy Exploration & Exploitation*, 36(1):132–148, 2018.
- [23] T. Khatib, W. Elmenreich, and A. Mohamed. Simplified IV characteristic tester for photovoltaic modules using a DC-DC boost converter. *Sustainability*, 9(4), April 2017.
- [24] F. Kupzog, W. Elmenreich, and R. Bieber. Managing data and complexity in energy systems. *Computer Science - Research and Development*, 32(1):1–2, Mrz 2017.
- [25] A. Monacchi, F. Versolatto, M. Herold, D. Egarter, A. Tonello, and W. Elmenreich. An open solution to provide personalized feedback for building energy management. *Journal of Ambient Intelligence and Smart Environments*, 9(2):147–162, 2017.
- [26] M. Jungmeier, F. Rauch, R. Hübner, and W. Elmenreich. Aporetische Konflikte - Lernpotenziale im Bereich Bildung für nachhaltige Entwicklung. *Science*, 1:57–63, 2016.
- [27] A. Monacchi and W. Elmenreich. Assisted energy management in smart microgrids. *Journal of Ambient Intelligence and Humanized Computing*, 7(6):901–913, 2016.
- [28] H. T. Haider, O. H. See, and W. Elmenreich. Residential demand response scheme based on adaptive consumption level pricing. *Energy*, 113:301–308, 2016.
- [29] M. Pöchacker, D. Egarter, and W. Elmenreich. Proficiency of power values for load disaggregation. *IEEE Transactions on Instrumentation and Measurement*, 65(1), 2016.
- [30] A. Monacchi, S. Zhevzhyk, and W. Elmenreich. HEMS: A home energy market simulator. *Computer Science - Research and Development*, 31(3), 2016.
- [31] H. T. Haider, O. H. See, and W. Elmenreich. A review of residential demand response of smart grid. *Renewable and Sustainable Energy Reviews*, 59:166–178, 2016.
- [32] H. T. Haider, O. H. See, and W. Elmenreich. Dynamic residential load scheduling based on adaptive consumption level pricing scheme. *Electric Power Systems Research*, 133:27–35, 2016.
- [33] D. Egarter, A. Monacchi, T. Khatib, and W. Elmenreich. Integration of legacy appliances into home energy management systems. *Journal of Ambient Intelligence and Humanized Computing*, 7(2), 2016.
- [34] C. Klemenjak, D. Egarter, and W. Elmenreich. YoMo: the arduino-based smart metering board. *Computer Science - Research and Development*, 31(1), 2016.
- [35] T. Szkaliczki, A. Sobe, and W. Elmenreich. Convergence and monotonicity of the hormone levels in a hormone-based content delivery system. *Central European Journal of Operations Research*, 24:939–964, 2016.
- [36] T. Khatib and W. Elmenreich. A model for hourly solar radiation data generation from daily solar radiation data using a generalized regression artificial neural network. *International Journal of Photoenergy*, 2015.
- [37] A. Sobe, W. Elmenreich, T. Szkaliczki, and L. Böszörményi. SEAHORSE: Generalizing an artificial hormone system algorithm to a middleware for search and delivery of information units. *Computer Networks*, 80:124–142, 2015.
- [38] S. Zhevzhyk and W. Elmenreich. Comparison of metaheuristic algorithms for evolving a neural controller for an autonomous robot. *Transactions on Machine Learning and Artificial Intelligence*, 2(6):62–76, 2015.
- [39] A. Mohammed, J. Pasupuleti, T. Khatib, and W. Elmenreich. A review of process and operational system control of hybrid photovoltaic/diesel generator systems. *Renewable and Sustainable Energy Reviews*, 44:436–446, 2015.
- [40] A.M. Ameen, J. Pasupuleti, T. Khatib, W. Elmenreich, and H.A. Kazem. Modeling and characterization of a photovoltaic array based on actual performance using cascade-forward back propagation artificial neural network. *Journal of Solar Energy Engineering*, 137(4), 2015.
- [41] M. Farhoodnea, A. Mohamed, T. Khatib, and W. Elmenreich. Performance evaluation and characterization of a 3-kWp grid-connected photovoltaic system based on tropical field experimental results: new results and comparative study. *Renewable and Sustainable Energy Reviews*, 42:1047–1054, 2015.
- [42] D. Egarter, V. P. Bhuvana, and W. Elmenreich. PALDi: Online load disaggregation via particle filtering. *IEEE Transactions on Instrumentation and Measurement*, 64:467–477, February 2015.
- [43] T. Khatib, A. Monacchi, W. Elmenreich, D. Egarter, S. D’Alessandro, and A. M. Tonello. European end-users level of energy consumption and attitude toward smart homes: A case study of residential sectors in Austria and Italy. *Energy Technology & Policy*, 1(1):97–105, 2014.
- [44] Hussein A Kazem, Tamer Khatib, K. Sopian, and Wilfried Elmenreich. Performance and feasibility assessment of a 1.4 kW roof top grid-connected photovoltaic power system under desertic weather conditions. *Energy and Buildings*, 82:123–129, 2014.
- [45] Aida Fazliana Abdul Kadir, Tamer Khatib, and Wilfried Elmenreich. Integrating photovoltaic systems in power system: Power quality impacts and optimal planning challenges. *International Journal of Photoenergy*, 2014.
- [46] Tamer Khatib and Wilfried Elmenreich. An improved method for sizing standalone photovoltaic systems

using generalized regression neural network. *International Journal of Photoenergy*, 2014.

- [47] M. Effendy Ya'acob, Hashim Hizam, Tamer Khatib, M. Amran M. Radzi, Chandima Gomes, M. Hamiruce Marhaban, and Wilfried Elmenreich. Modelling of photovoltaic array temperature in a tropical site using generalized extreme value distribution. *Journal of Renewable and Sustainable Energy*, 6(3), 2014.
- [48] T. Khatib and W. Elmenreich. Novel simplified hourly energy flow models for photovoltaic power systems. *Energy Conversion and Management*, 79:441–448, 2014.
- [49] A. F. A. Kadir, A. Mohamed, H. Shareef, A. Asrul Ibrahim, T. Khatib, and W. Elmenreich. An improved gravitational search algorithm for optimal placement and sizing of renewable distributed generation units in a distribution system for power quality enhancement. *Journal of Renewable and Sustainable Energy*, 6(3), 2014.
- [50] T. Khatib and W. Elmenreich. Optimum availability of standalone photovoltaic power systems for remote housing electrification. *International Journal of Photoenergy*, 2014.
- [51] A. Sobe and W. Elmenreich. Replication and replacement in dynamic delivery networks. *Complex Adaptive Systems Modeling*, 2013.
- [52] H. Kazem, T. Khatib, K. Sopian, F. Buttinger, W. Elmenreich, and A. Said Albusaidi. Effect of dust deposition on the performance of multi-crystalline photovoltaic modules based on experimental measurements. *International Journal of Renewable Energy Research (IJRER)*, 3(4):850–853, 2013.
- [53] M. Koplín and W. Elmenreich. State-of-the-art versus time-triggered object tracking in advanced driver assistance systems. *International Journal of Advanced Robotic Systems*, 2013.
- [54] W. Elmenreich and M. Koplín. A time-triggered object tracking subsystem for advanced driver assistance systems. *e & i*, Springer, 128(6):203–208, 2011.
- [55] I. Fehervari and W. Elmenreich. Evolving neural network controllers for a team of self-organizing robots. *Journal of Robotics*, 2010.
- [56] R. Leidenfrost and W. Elmenreich. Firefly clock synchronization in an 802.15.4 wireless network. *EURASIP Journal on Embedded Systems*, 2009:17 p., 2009.
- [57] W. Elmenreich, T. Ibounig, and I. Fehervari. Robustness versus performance in sorting and tournament algorithms. *Acta Polytechnica*, 6(5):7–18, 2009.
- [58] W. Elmenreich, M. Kucera, B. Rinner, R. Seepold, and V. Turau. Challenges on complexity and connectivity in embedded systems – Editorial. *EURASIP Journal on Embedded Systems*, 2009:2 p., 2009.
- [59] W. Elmenreich, N. Marchenko, H. Adam, C. Hofbauer, G. Brandner, C. Bettstetter, and M. Huemer. Building blocks of cooperative relaying in wireless systems. *e & i*, Springer, 125(10):353–359, 2008.
- [60] W. Elmenreich. Constructing dependable certainty grids from unreliable sensor data robotics and autonomous systems. *Robotics and Autonomous Systems*, 56(12):1094–1101, December 2008.
- [61] B. Andersson, N. Pereira, W. Elmenreich, E. Tovar, F. Pacheco, and N. Cruz. A scalable and efficient approach for obtaining measurements in CAN-based control systems. *IEEE Transactions on Industrial Informatics*, 4(2):80–91, May 2008.
- [62] M. Schlager, R. Obermaisser, and W. Elmenreich. A framework for hardware-in-the-loop testing of an integrated architecture. *Lecture Notes in Computer Science*, 4761:159–170, 2007.
- [63] W. Elmenreich. Fusion of continuous-valued sensor measurements using confidence-weighted averaging. *Journal of Vibration and Control*, 13(9-10):1303–1312, 2007.
- [64] W. Elmenreich. A review on system architectures for sensor fusion applications. *Lecture Notes in Computer Science*, 4761:547–559, 2007.
- [65] W. Elmenreich, W. Haidinger, H. Kopetz, T. Losert, R. Obermaisser, H. Paulitsch, and P. Peti. A standard for real-time smart transducer interface. *Computer Standards & Interfaces*, 28(6):613–624, 2006.
- [66] W. Elmenreich. Time-triggered smart transducer networks. *IEEE Transactions on Industrial Informatics*, 2(3):192–199, 2006.
- [67] T. Losert, M. Schlager, and W. Elmenreich. Fault-tolerant compensation of the propagation delay for hard real-time systems. *Journal of Advanced Computational Intelligence and Intelligent Informatics*, 9(4):346–352, 2005.
- [68] B. Huber and W. Elmenreich. Wireless time-triggered real-time communication. *Telematik*, 3-4:44–50, 2004.
- [69] M. Delvai, U. Eisenmann, and W. Elmenreich. A generic architecture for integrated smart transducers. *Lecture Notes in Computer Science*, 2778:733–744, 2003.
- [70] H. Kopetz, M. Holzmann, and W. Elmenreich. A universal smart transducer interface: TTP/A. *International Journal of Computer System, Science & Engineering*, 16(2):71–77, 2001.

Books and Theses

- [71] Johanna Janiszewski, Lisa Ihde, and Wilfried Elmenreich. *Gamedesign for Dummies Junior*. Wiley, 2022. ISBN 978-3527718757.

- [72] W. Elmenreich, R. R. Schalleger, F. Schniz, S. Gabriel, G. Pölsterl, and W. B. Ruge, editors. *Savegame, Perspektiven der Game Studies*, Berlin und London, Dezember 2019. Springer Nature.
- [73] S. Rabitsch, M. Gabriel, W. Elmenreich, and J.N.A. Brown. *Set Phasers to Teach! – Star Trek in Research and Teaching*. Springer, 2018. ISBN 978-3-319-73776-8.
- [74] T. Khatib and W. Elmenreich. *Modeling of Photovoltaic Systems Using MATLAB: Simplified Green Codes*. Wiley, 2016. ISBN 978-1-119-11810-7.
- [75] W. Elmenreich and H. P. Groß. *Das Spiel - Interdisziplinäre Perspektiven auf ein vielgestaltiges kulturelles Phänomen*. Profil, 2016. ISBN 978-3-89019-708-1.
- [76] W. Elmenreich, F. Dressler, and V. Loreto, editors. *Self-Organizing Systems, 7th IFIP TC 6 International Workshop, IWSOS 2013, Revised Selected Papers*. Springer, 2014. ISBN 978-3-642-54139-1.
- [77] W. Elmenreich, editor. *Embedded Systems Engineering*. Vienna University of Technology, Austria, Vienna, Austria, 2009. ISBN 978-3-902463-08-1.
- [78] W. Elmenreich. *Time-Triggered Transducer Networks*. Habilitation thesis, Vienna University of Technology, Vienna, Austria, 2007.
- [79] W. Elmenreich and H. Kaiser, editors. *Proceedings of the Junior Scientist Conference 2006*. TU Wien, Wien, Österreich, 2006.
- [80] W. Elmenreich, G. Novak, and R. Seepold, editors. *Proceedings of the Fourth Workshop on Intelligent Solutions in Embedded Systems*. TU Wien, Wien, Österreich, 2006.
- [81] W. Elmenreich, J. A. T. Machado, and I. J. Rudas, editors. *Intelligent Systems at the Service of Mankind, Volume II*. UBooks Verlag, Augsburg, Deutschland, 2005.
- [82] B. Rinner and W. Elmenreich, editors. *Proceedings of the Second Workshop on Intelligent Solutions in Embedded Systems*. Technische Universität Graz, Graz, Österreich, 2004.
- [83] W. Elmenreich, Wolfgang Haidinger, and J. A. Tenreiro Machado, editors. *Proceedings of the 2nd IEEE International Conference on Computational Cybernetics*. TU Wien, Wien, 2004.
- [84] W. Elmenreich, editor. *Proceedings of the First Workshop on Intelligent Solutions in Embedded Systems*. TU Wien, Vienna, Austria, 2003.
- [85] W. Elmenreich, J. A. T. Machado, and I. J. Rudas, editors. *Intelligent Systems at the Service of Mankind, Volume I*. UBooks Verlag, Augsburg, Deutschland, 2003.
- [86] W. Elmenreich, editor. *Systemnahes Programmieren - C Programmierung unter Unix und Linux*. UBooks Verlag, Augsburg, 2002. ISBN 978-3939359852.
- [87] W. Elmenreich. *Sensor Fusion in Time-Triggered Systems*. PhD thesis, Institut für Technische Informatik, 2002.

Book chapters

- [88] Ahmad Kalatiani, Magdalena M. Strobl, and Wilfried Elmenreich. Exploring accessibility enhancement in printable board games through 3d printing with a heist board game case study. In Nikolaus Koenig, Natalie Denk, Alexander Pfeiffer, Thomas Wernbacher, and Simon Wimmer, editors, *Money — Games — Economies*, pages 211–225. University of Krems Press, 2024.
- [89] Lea Santner and Wilfried Elmenreich. Money systems in text adventures and their design challenges. In Nikolaus Koenig, Natalie Denk, Alexander Pfeiffer, Thomas Wernbacher, and Simon Wimmer, editors, *Money — Games — Economies*, pages 55–70. University of Krems Press, 2024.
- [90] Martina Umlauft, Melanie Schranz, and Wilfried Elmenreich. Simulation of swarm intelligence for flexible job-shop scheduling with swarmfabsim: Case studies with artificial hormones and an ant algorithm. In Gerd Wagner, Frank Werner, and Floriano De Rango, editors, *Simulation and Modeling Methodologies, Technologies and Applications*, pages 133–155, Cham, 2023. Springer International Publishing.
- [91] Martina Umlauft and Elmenreich. Ant algorithms for routing in wireless multi-hop networks. In *Ant Colony Optimization*. IntechOpen Book Series, 2021.
- [92] Wilfried Elmenreich and Martin Gabriel. Global history, facts and fiction in early computer games: Hanse, Seven Cities of Gold, Sid Meier’s Pirates! In Natalie Denk, Alesha Serada, Alexander Pfeiffer, and Thomas Wernbacher, editors, *A Ludic Society*, pages 133–148. Edition Donau-Universität Krems, 2021.
- [93] Wilfried Elmenreich and Mathias Lux. Analyzing usage patterns in online games. In Natalie Denk, Alesha Serada, Alexander Pfeiffer, and Thomas Wernbacher, editors, *A Ludic Society*, pages 347–359. Edition Donau-Universität Krems, 2021.
- [94] Ekanki Sharma and Wilfried Elmenreich. A review on physical and data-driven based nowcasting methods using sky images. In Kohei Arai, editor, *Springer International Publishing*, volume 1394 of *Advances in Information and Communication*, pages 352–370. Springer Verlag GmbH, Berlin, Heidelberg, New York, 2021.
- [95] Anneliese Fuchs, Christina Pichler-Koban, Arthur Pitman, Wilfried Elmenreich, and Michael Jungmeier. Games and gamification - new instruments for communicating sustainability. In F. Weder, L. Krainer, and M. Karmasin, editors, *The Sustainability Communication Reader*. Springer VS, Wiesbaden, 2021.

- [96] Wilfried Elmenreich. Game Engineering for Hybrid Board Games. In Felix Schniz, Sonja Gabriel, Gerhard Pölsterl, Emir Bektić, and Florian Kelle, editors, *Mixed Reality and Games – Theoretical and Practical Approaches in Game Studies and Education*, pages 49–60. transcript, 2020.
- [97] Wilfried Elmenreich. Short Games. In Wilfried Elmenreich, René Reinhold Schallegger, Felix Schniz, Sonja Gabriel, Gerhard Pölsterl, and Wolfgang B. Ruge, editors, *Savegame*, Perspektiven der Game Studies, pages 41–53, Berlin und London, Dezember 2019. Springer Nature.
- [98] Anneliese Fuchs, Christina Pichler-Koban, Wilfried Elmenreich, and Michael Jungmeier. Game of clones: Students model the dispersal and fighting of japanese knotweed (*fallopia japonica*). In Sudam Charan Sahu and Sanjeet Kumar, editors, *Invasive Species*. InTechOpen, 2019.
- [99] D. Errath, S. Kletz, A. Leibetseder, P. Moll, J. Zraunig, and W. Elmenreich. Digitalisierung und Anthropozän. In H. Egner and H. P. Groß, editors, *Das Anthropozän*, pages 133–176. Profil Verlag, 2019.
- [100] M. Schranz, W. Elmenreich, and M. Rappaport. Designing Cyber-physical Systems with Evolutionary Algorithms. In Michael E. Auer, Abul K.M. Azad, Arthur Edwards, and Ton de Jong, editors, *Cyber-Physical Laboratories in Engineering and Science Education*, pages 111–135. Springer, Berlin, April 2018.
- [101] W. Elmenreich. The Energy System in Star Trek and Its Real-Life Counterparts. In *Set Phasers to Teach!*, pages 63–70. Springer, Berlin, 2018.
- [102] W. Elmenreich, T. Khatib, and A. Monacchi. Smart microgrids: Optimizing local resources toward increased efficiency and a more sustainable growth. In Soha Maad, editor, *Business, Management and Economics "Research and Development Evolving Trends and Practices - Towards Human, Institutional and Economic Sectors Growth"*, pages 53–72. Intech, Vukovar, September 2017.
- [103] S. Zhevzhyk, D. Hölbling, G. Köpf, C. Zellot, M. Lux, and W. Elmenreich. Indie games. In W. Elmenreich and H. P. Groß, editors, *Das Spiel*, pages 53–86. Profil, München, 2016.
- [104] W. Elmenreich and A. Monacchi. Configuration and management of networked embedded devices. In R. Zurawski, editor, *Industrial Communication Technology Handbook, Second Edition*, pages 3–1–3–25. CRC Press, Boca Raton, FL 33431, USA, 2014.
- [105] W. Elmenreich. TTP/A. In R. Obermaisser, editor, *Time-Triggered Communication*. Taylor & Francis, 2011.
- [106] W. Elmenreich. LIN. In R. Obermaisser, editor, *Time-Triggered Communication*. Taylor & Francis, 2011.
- [107] J. A. Fonseca L. Lo Bello and W. Elmenreich. Real-time systems. In B. M. Wilamowski and J. D. Irwin, editors, *Industrial Communication Systems*, pages 17–1 – 17–13. CRC Press, Boca Raton, FL 33431, USA, 2011.
- [108] W. Elmenreich and C. Salloum. Protocols of the time-triggered architecture: TTP, TTEthernet, TTP/A. In B. M. Wilamowski and J. D. Irwin, editors, *Industrial Communication Systems*, pages 43–1 – 43–12. CRC Press, Boca Raton, FL 33431, USA, 2011.
- [109] W. Elmenreich. Configuration and management of networked embedded devices. In *Networked Embedded Systems*, pages 22–1–22–21. CRC Press, Boca Raton, FL 33431, USA, 2009.
- [110] W. Elmenreich, A. Wolf, and M. Rosenblattl. Providing standardized fixed-point arithmetics for embedded C programs. In *Intelligent Technical Systems*, pages 101–114. Springer Verlag, 2009.
- [111] W. Elmenreich and S. Pitzek. Smart transducers – principles, communications and configuration. In *Intelligent Systems at the Service of Mankind, Volume II*, pages 175–186. UBooks Verlag, Augsburg, Deutschland, 2005.
- [112] S. Pitzek and W. Elmenreich. Configuration and management of fieldbus systems. In *The Industrial Communication Technology Handbook*, pages 18–1–18–20. CRC Press, Boca Raton, FL 33431, USA, 2005.
- [113] W. Elmenreich and P. Peti. Distributed sensor fusion networks. In *Intelligent Systems at the Service of Mankind*, pages 335–347. UBooks Verlag, Augsburg, Deutschland, 2003.
- [114] W. Elmenreich and R. Kirner. A robust certainty grid algorithm for robotic vision. In *Intelligent Systems at the Service of Mankind*, pages 67–78. UBooks Verlag, Augsburg, Deutschland, 2003.

Magazine Articles

- [115] W. Elmenreich. Wider den Matthäuseffekt. *OCG Journal*, 40(1):23–24, 2015.
- [116] W. Elmenreich. Kostengünstig vernetzen mit TTP/A. *Markt & Technik*, 38:42–44, 2000.
- [117] A. N. Rapaka, W. Elmenreich, and D. Wunsch. TTP/A protocol and design. *Circuit Cellar*, 164:12–21, 2004.

Conference and Workshop Papers

- [118] Khalil Al rahman Youssefi, Helmut Lindner, and Wilfried Elmenreich. Robotunes: A multi-player learning framework with musical programmable robots. In *Proceedings of the 10th International Conference on Automation, Robotics and Applications (ICARA)*, pages 334–338, February 2024.

- [119] Johannes Winkler, Hafsa Bousbiat, Stefan Jost, and Wilfried Elmenreich. Energy disaggregation with NILM on a Raspberry Pi with smart-metering extension. In *Proceedings of the 2nd International Conference on Power Systems and Electrical Technology (PSET)*, pages 191–195, August 2023.
- [120] Kristina Wogatai, Johannes Winkler, and Wilfried Elmenreich. A graph-based approach for applying biologically-inspired slime mold algorithms for repairing a power transmission network after an electromagnetic pulse attack. In *Proceedings of the 2nd International Conference on Power Systems and Electrical Technology (PSET)*, pages 163–172, August 2023.
- [121] Hafsa Bousbiat, Christoph Klemenjak, Yassine Himeur, Wilfried Elmenreich, Abbes Amira, Wathiq Mansoor, and Shadi Atalla. Neural NILM learning paradigms: From centralised to decentralised learning. In *Proceedings of the 2022 5th International Conference on Signal Processing and Information Security (ICSPIS)*, pages 138–142, December 2022.
- [122] Martina Umlauft, Melanie Schranz, and Wilfried Elmenreich. SwarmFabSim: A simulation framework for bottom-up optimization in flexible job-shop scheduling using Netlogo. In *Proceedings of the 12th International Conference on Simulation and Modeling Methodologies, Technologies and Applications - SIMULTECH*, pages 271–279. SciTePress, July 2022.
- [123] Arpitha Prabhakara, Benjamin Steinwender, and Wilfried Elmenreich. Statistical analysis of execution time profile for temporal validation of a distributed hard real-time system. In *Proceedings of the 22nd IEEE International Conference on Industrial Technology (ICIT)*, March 2021.
- [124] Melanie Schranz, Martina Umlauft, and Wilfried Elmenreich. Bottom-up job shop scheduling with swarm intelligence in large production plants. In *Proceedings of the 11th International Conference on Simulation and Modeling Methodologies, Technologies and Applications - SIMULTECH*. SciTePress, July 2021.
- [125] Wilfried Elmenreich, Alexander Schnabl, and Melanie Schranz. An artificial hormone-based algorithm for production scheduling from the bottom-up. In *Proceedings of the 13th International Conference on Agents and Artificial Intelligence*. SciTePress, February 2021.
- [126] Hafsa Bousbiat, Christoph Klemenjak, and Wilfried Elmenreich. Exploring time series imaging for load disaggregation. In *BuildSys '20: The 7th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation*, pages 254–257. ACM New York, November 2020.
- [127] Ekanki Sharma, Marco Mussetta, and Wilfried Elmenreich. Investigating the impact of data quality on the energy yield forecast using data mining techniques. In *Proceedings of the IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe)*. IEEE, October 2020.
- [128] Hafsa Bousbiat, Christoph Klemenjak, Gerhard Leitner, and Wilfried Elmenreich. Augmenting an assisted living lab with non-intrusive load monitoring. In *IEEE Instrumentation & Measurement Technology Conference (I2MTC)*. IEEE, May 2020.
- [129] Christoph Klemenjak, Stephen Makonin, and Wilfried Elmenreich. Towards comparability in non-intrusive load monitoring: On data and performance evaluation. In *IEEE Power & Energy Society Innovative Smart Grid Technologies Conference (ISGT)*. IEEE, May 2020.
- [130] Christoph Klemenjak, Andreas Reinhardt, Lucas Pereira, Mario Berges, Stephen Makonin, and Wilfried Elmenreich. Electricity consumption data sets: Pitfalls and opportunities. In *BuildSys 19: The 6th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation*, pages 1–4. ACM New York, November 2019.
- [131] Martina Umlauft and Wilfried Elmenreich. Topology Characterization for Position-based Wireless Network Topology Generators. In Anna Maria Vegni, editor, *15th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob 2019)*, Piscataway (NJ), Oktober 2019. IEEE.
- [132] Midhat Jdeed, Melanie Schranz, Alessandra Bagnato, Sarah Suleri, Gianluca Prato, Davide Conzon, Micha Sende, Etienne Brosse, Claudio Pastrone, and Wilfried Elmenreich. The CPSwarm technology for designing swarms of cyber-physical systems. In *1st Research Project Showcase Workshop co-located with Software Technologies: Applications and Foundations (STAF 2019)*, pages 85–90, 2019.
- [133] Elnaz Khatmi, Wilfried Elmenreich, Kristina Wogatai, Melanie Schranz, Martina Umlauft, Walter Laure, and Andreas Wuttei. Swarm intelligence layer to control autonomous agents (SWILT). In *1st Research Project Showcase Workshop co-located with Software Technologies: Applications and Foundations (STAF 2019)*, pages 91–95, 2019.
- [134] Midhat Jdeed, Arthur Pitman, and Wilfried Elmenreich. Evolving swarm behavior for simulated spiderino robots. In *The Eleventh International Conference on Adaptive and Self-Adaptive Systems and Applications*, pages 21–26. International Academy, Research, and Industry Association (IARIA), February 2019.
- [135] W. Elmenreich, M. Jungmeier, and C. Pichler-Koban. Game of Clones: Schülerinnen und Schüler modellieren die Bekämpfung des Staudenknöterichs (*Fallopia japonica*). In *18. Österreichische Botanik-Tagung 24. Internationale Tagung der Sektion Biodiversität und Evolutionsbiologie der Deutschen Botanischen esellschaft*, page 22, 2018.
- [136] M. Rappaport, D. Conzon, M. Jdeed, M. Schranz, E. Ferrera, and W. Elmenreich. Distributed simulation for evolutionary design of swarms of cyber-physical systems. In *Proceedings International Conference on*

Adaptive and Self-Adaptive Systems and Applications, pages 60–65, February 2018.

- [137] M. Schranz, A. Bagnato, E. Brosse, and W. Elmenreich. Modelling a CPS swarm system: A simple case study. In Slimane Hammoudi, Luis Ferreira Pires, and Bran Selic, editors, *Proceedings of the 6th International Conference on Model-Driven Engineering and Software Development (MODELSWARD'18)*, pages 615–624, Setubal, January 2018.
- [138] C. Klemenjak, S. Jost, and W. Elmenreich. YoMoPie: A User-Oriented Energy Monitor to Enhance Energy Efficiency in Households. In *2018 IEEE Conference on Technologies for Sustainability (SusTech)*, pages 1–7. IEEE, Piscataway (NJ), November 2018.
- [139] M. Jdeed, E. Sharma, C. Klemenjak, and W. Elmenreich. Smart grid modeling and simulation - comparing GridLAB-D and RAPSIm via two case studies. In *2018 IEEE International Energy Conference (ENERGYCON)*, Limassol, Cyprus, June 2018.
- [140] S.R.P. Chitturi, E. Sharma, and W. Elmenreich. Efficiency of photovoltaic systems in mountainous areas. In *2018 IEEE International Energy Conference (ENERGYCON)*, Limassol, Cyprus, June 2018.
- [141] S. Einspieler, B. Steinwender, and W. Elmenreich. Integrating time-triggered and event-triggered traffic in a hard real-time system. In *2018 IEEE Industrial Cyber-Physical Systems (ICPS)*, pages 122–128, May 2018.
- [142] C. Klemenjak and W. Elmenreich. On the applicability of correlation filters for appliance detection in smart meter readings. In *2017 IEEE International Conference on Smart Grid Communications (Smart-GridComm)*, pages 183–188, Dresden, Germany, October 2017.
- [143] C. Klemenjak and W. Elmenreich. Yay - an open-hardware energy measurement system for feedback and appliance detection based on the arduino platform. In *13th Workshop on Intelligent Solutions in Embedded Systems (WISES 2017)*, pages 1–8, July 2017.
- [144] M. Jdeed, S. Zhevzyk, F. Steinkellner, and W. Elmenreich. Spiderino - a low-cost robot for swarm research and educational purposes. In *13th Workshop on Intelligent Solutions in Embedded Systems (WISES 2017)*, pages 35–39, July 2017.
- [145] A. Bagnato, R. K. Biro, D. Bonino, C. Pastrone, W. Elmenreich, R. Reiners, M. Schranz, and E. Arnautovic. Designing swarms of cyber-physical systems: the H2020 CPSwarm project. In *ACM International Conference on Computing Frontiers*, Siena, Italy, 2017.
- [146] Daniela Errath and Wilfried Elmenreich. Metering systems for office and home application with real-time intervention. In Damir Mlaka, editor, *1st AARC PHD Students Conference on Environment and Sustainable Energy*, pages 9–13. Mariborska Knjžnica, Maribor, November 2016.
- [147] Dominik Daniel Egarter, Manfred Rabl-Pchacker, and Wilfried Elmenreich. Complexity of power draws for load disaggregation. In Friederich Kupzog, editor, *Proceedings of the 5th D-A-CH+ Energy Informatics Conference in conjunction with 7th Symposium on Communications for Energy Systems (ComForEn)*, pages 81–92. sterreichischer Verband fr Elektrotechnik (OVE), Wien, September 2016.
- [148] D. Egarter and W. Elmenreich. Autonomous load disaggregation approach based on active power measurements. In *2015 IEEE International Conference on Pervasive Computing and Communication Workshops (PerCom Workshops)*, pages 293–298, St. Louis, Missouri, USA, March 2015.
- [149] D. Egarter and W. Elmenreich. Load disaggregation with metaheuristic optimization. In *Proceedings of Energieinformatik'15*, Karlsruhe, Germany, 2015.
- [150] W. Elmenreich, B. Heiden, G. Reiner, and S. Zhevzyk. A low-cost robot for multi-robot experiments. In *Proceedings of the 12th International Workshop on Intelligent Solutions in Embedded Systems (WISES'15)*, pages 127–132, Ancona, Italy, October 2015.
- [151] H. T. Haider, O. H. See, and W. Elmenreich. Optimal residential load scheduling based on time varying pricing scheme. In *IEEE Student Conference on Research and Development (SCOReD)*, Kuala Lumpur, Malaysia, 2015. Best paper award at SCOReD 2015!
- [152] M. Pöchacker and W. Elmenreich. Model implementation for the extendable open source power system simulator RAPSIm. In *Proceedings of the 12th International Workshop on Intelligent Solutions in Embedded Systems (WISES'15)*, pages 103–108, Ancona, Italy, October 2015.
- [153] T. Dittrich and W. Elmenreich. Comparison of a spatially-structured cellular evolutionary algorithm to an evolutionary algorithm with panmictic population. In *Proceedings of the 12th International Workshop on Intelligent Solutions in Embedded Systems (WISES'15)*, pages 145–149, Ancona, Italy, October 2015.
- [154] B. Steinwender, M. Glavanovics, and W. Elmenreich. Executable test definition for a state machine driven embedded test controller module. In *Proceedings of the 13th International Conference on Industrial Informatics*, pages 168–173. IEEE, 2015.
- [155] M. Schellander, T. Khatib, W. Elmenreich, and D. Egarter. Techno-economical assessment of grid-connected photovoltaic power systems productivity in summer season in Klagenfurt, Austria. In *IEEE International Conference on Power and Energy (PECon)*, pages 315–318, Kuching, Malaysia, 2014.
- [156] A. Monacchi, S. Zhevzyk, and W. Elmenreich. HEMS: A home energy market simulator. In *Proc. Energieinformatik*, Zurich, Switzerland, 2014.
- [157] C. Klemenjak, D. Egarter, and W. Elmenreich. YOMO - The arduino based smart metering board. In

Proc. Energieinformatik, Zurich, Switzerland, 2014.

- [158] A. Monacchi, D. Egarter, W. Elmenreich, S. D'Alessandro, and A. M. Tonello. GREEND: An energy consumption dataset of households in Italy and Austria. In *Proc. IEEE International Conference on Smart Grid Communications (SmartGridComm'14)*, Venice, Italy, 2014.
- [159] D. Egarter, C. Prokop, and W. Elmenreich. Load hiding of household's power demand. In *Proc. IEEE International Conference on Smart Grid Communications (SmartGridComm'14)*, Venice, Italy, 2014.
- [160] M. Pöchacker, T. Khatib, and W. Elmenreich. The microgrid simulation tool RAPSIm: Description and case study. In *Proceedings of the IEEE Innovative Smart Grid Technologies Asia (ISGT-ASIA'14)*, Kuala Lumpur, Malaysia, 2014.
- [161] A. Kerec and W. Elmenreich und A. Monacchi. Energieverbrauch in den Regionen Kärnten, Österreich und Friaul-Julisch-Venetien, Italien - Ein Vergleich. In *Proc. 13. Symposium Energieinnovation*, page 9, 2014.
- [162] Salvatore D'Alessandro, A. Tonello, A. Monacchi, and W. Elmenreich. Home energy management systems: Design guidelines for the communication infrastructure. In *Proc. 2014 IEEE International Energy Conference (ENERGYCON)*, pages 805–812. IEEE, 2014.
- [163] I. Fehervari and W. Elmenreich. Evolution as a tool to design self-organizing systems. In *Self-Organizing Systems*, volume LNCS 8221, pages 139–144. Springer Verlag, 2014.
- [164] B. Steinwender, S. Einspieler, M. Glavanovics, and W. Elmenreich. Distributed power semiconductor stress test & measurement architecture. In *Proceedings of the 11th International Conference on Industrial Informatics*, pages 129–134. IEEE, 2013.
- [165] A. Monacchi and W. Elmenreich. Insert-coin: turning the household into a prepaid billing system. In *Poster Abstract, 5th ACM Workshop On Embedded Systems For Energy-Efficient Buildings*. ACM, November 2013.
- [166] D. Egarter and W. Elmenreich. Appliance state estimation based on particle filtering. In *Poster Abstract, 5th ACM Workshop On Embedded Systems For Energy-Efficient Buildings*. ACM, November 2013.
- [167] A. Monacchi, W. Elmenreich, Salvatore D'Alessandro, and A. Tonello. Strategies for domestic energy conservation in Carinthia and Friuli-Venezia Giulia. In *Proceedings of the 39th Annual Conference of the IEEE Industrial Electronics Society (IECON 2013)*. IEEE, November 2013.
- [168] D. Egarter and W. Elmenreich. EvoNILM - Evolutionary appliance detection for miscellaneous household appliances. In *Proceedings of the Green and Efficient Energy Applications of Genetic and Evolutionary Computation at the 2013 Genetic and Evolutionary Computation Conference (GECCO 2013 GreenGEC)*. ACM, July 2013.
- [169] T. Szkaliczki, A. Sobe, W. Elmenreich, and L. Böszörményi. Analysis of an artificial hormone system. In *8th Japanese-Hungarian Symposium. on Discrete Mathematics and Its Applications*, Veszprém, Hungary, June 2013.
- [170] I. Fehérvári, V. Trianni, and W. Elmenreich. On the effects of the robot configuration on evolving coordinated motion behaviors. In *Proceedings of the IEEE Congress on Evolutionary Computation*. IEEE, June 2013.
- [171] M. Poehacker, A. Sobe, and W. Elmenreich. Simulating the smart grid. In *IEEE PowerTech*, Grenoble, France, June 2013.
- [172] W. Elmenreich and S. Schuster. Demand response by decentralized device control based on voltage level. In *Proceedings of the 7th International Workshop on Self-Organizing Systems*, pages 186–189. Springer Verlag, May 2013.
- [173] I. Fehérvári, A. Sobe, and W. Elmenreich. Biologically sound neural networks for embedded systems using OpenCL. In *Proceedings of the International Conference on NETworked sYstems (NETYS 2013)*. Springer Verlag, May 2013.
- [174] A. Monacchi, D. Egarter, and W. Elmenreich. Integrating households into the smart grid. In *Proceedings of the Workshop on Modeling and Simulation of Cyber-Physical Energy Systems (MSCPES13'13)*, Berkeley, CA, USA, May 2013.
- [175] D. Egarter, A. Sobe, and W. Elmenreich. Evolving non-intrusive load monitoring. In *Proceedings of the 15th European Conference on the Applications of Evolutionary and bio-inspired Computation*, pages 182–191, Vienna, Austria, April 2013.
- [176] A. Sobe, I. Fehérvári, and W. Elmenreich. FREVO: A tool for evolving and evaluating self-organizing systems. In *Proceedings of the 1st International Workshop on Evaluation for Self-Adaptive and Self-Organizing Systems*, Lyon, France, September 2012.
- [177] A. Sobe and W. Elmenreich. Smart microgrids: Overview and outlook. In *Proceedings of the ITG INFORMATIK Workshop on Smart Grids*, Braunschweig, Germany, September 2012.
- [178] Á. Pintér-Bartha, A. Sobe, and W. Elmenreich. Towards the light – Comparing evolved neural network controllers and finite state machine controllers. In *Proceedings of the Tenth International Workshop on Intelligent Solutions in Embedded Systems (WISES'12)*, pages 83–87, Klagenfurt, Austria, July 2012.
- [179] W. Elmenreich and D. Egarter. Design guidelines for smart appliances. In *Proceedings of the 10th*

International Workshop on Intelligent Solutions in Embedded Systems (WISES'12), Klagenfurt, Austria, July 2012.

- [180] A. Sobe, W. Elmenreich, and M. del Fabro. Self-organizing content sharing at social events. In R. M. Bichler, S. Blachfellner, and W. Hofkirchner, editors, *European Meeting on Cybernetics and Systems Research Book of Abstracts*, pages 197–200, Vienna, Austria, April 2012.
- [181] I. Fehérvári, W. Elmenreich, and E. Yanmaz. Evolving a team of self-organizing UAVs to address spatial coverage problems. In R. M. Bichler, S. Blachfellner, and W. Hofkirchner, editors, *European Meeting on Cybernetics and Systems Research Book of Abstracts*, pages 201–204, Vienna, Austria, April 2012.
- [182] A. Sobe, W. Elmenreich, and L. Böszörmenyi. Replication for bio-inspired delivery in unstructured peer-to-peer networks. In *Proceedings of the Ninth International Workshop on Intelligent Solutions in Embedded Systems (WISES'11)*, Regensburg, Germany, July 2011.
- [183] W. Elmenreich and I. Fehérvári. Evolving self-organizing cellular automata based on neural network genotypes. In *Proceedings of the Fifth International Workshop on Self-Organizing Systems*, volume LNCS 6557, pages 16–25. Springer Verlag, 2011.
- [184] N. Marchenko, C. Bettstetter, and W. Elmenreich. Incremental cooperative relaying in time-correlated rayleigh fading channels. In *Proceedings of the IEEE Global Communications Conference (GLOBECOM)*, Miami, FL, USA, 2010.
- [185] E. Yanmaz, C. Costanzo, C. Bettstetter, and W. Elmenreich. A discrete stochastic process for coverage analysis of autonomous UAV networks. In *Proceedings of the International Workshop on Wireless Networking for Unmanned Aerial Vehicles*, Miami, FL, USA, 2010.
- [186] A. Sobe, W. Elmenreich, and L. Böszörmenyi. Towards a self-organizing replication model for non-sequential media access. In *ACM Multimedia 2010 Workshop - Social, Adaptive and Personalized Multimedia Interaction and Access (SAPMIA 2010)*, Firenze, Italy, October 2010.
- [187] R. Leidenfrost, W. Elmenreich, and C. Bettstetter. Fault-tolerant averaging for self-organizing synchronization in wireless ad hoc networks. In *Proceedings of the International Symposium on Wireless Communication Systems (ISWCS)*, York, UK, 2010.
- [188] H. Adam, E. Yanmaz, W. Elmenreich, and C. Bettstetter. Contention-based neighborhood estimation. In *Proceedings of the IEEE Vehicular Technology Conference (VTC-Spring)*, Taipei, Taiwan, 2010.
- [189] W. Elmenreich, R. D'Souza, C. Bettstetter, and H. de Meer. A survey of models and design methods for self-organizing networked systems. In *Proceedings of the Fourth International Workshop on Self-Organizing Systems*, volume LNCS 5918, pages 37–49. Springer Verlag, 2009.
- [190] I. Fehérvári and W. Elmenreich. Towards evolving cooperative behavior with neural controllers. In *IFIP Fourth International Workshop on Self-Organizing Systems*, 2009.
- [191] H. Adam, W. Elmenreich, C. Bettstetter, and S. M. Senouci. CoRe-MAC: A MAC-protocol for cooperative relaying in wireless networks. In *Proceedings of the 2009 IEEE Global Communication Conference (Globecom)*, Honolulu, Hawaii, 2009.
- [192] I. Fehérvári and W. Elmenreich. Evolutionary methods in self-organizing system design. In *Proceedings of the 2009 International Conference on Genetic and Evolutionary Methods*, pages 10–15, Las Vegas, NV, USA, 2009.
- [193] W. Elmenreich and G. Friedrich. How to design self-organizing systems. In *Science beyond Fiction FET09*, pages 61–62, Prague, Czech Republic, 2009. European Commission: Information Society and Media, Brussels.
- [194] M. Umlauf and W. Elmenreich. QoS-aware ant routing with colored pheromones in wireless mesh networks. In Antonio Manzalini et al., editors, *Second International Conference on Autonomic Computing and Communication Systems (AUTONOMICS '08)*. ACM / ICST, 2008.
- [195] W. Elmenreich and H. de Meer. Self-organizing networked systems for technical applications: A discussion on open issues. In J.P.G. Sterbenz. K.A. Hummel, editor, *Proceedings of the Third International Workshop on Self-Organizing Systems*, pages 1–9. Springer Verlag, 2008.
- [196] M. Schranz and W. Elmenreich. Approach for a reliable cooperative relaying process. In H. Kaiser and R. Kirner, editors, *Proceedings of the Junior Scientist Conference 2008*, pages 61–62. Technische Universität Wien, 2008.
- [197] I. Fehérvári and W. Elmenreich. Design of self-organizing systems using evolutionary methods. In H. Kaiser and R. Kirner, editors, *Proceedings of the Junior Scientist Conference 2008*, pages 53–54. Technische Universität Wien, 2008.
- [198] W. Elmenreich and R. Leidenfrost. Fusion of heterogeneous sensors data. In *Proceedings of the Sixth International Workshop on Intelligent Solutions in Embedded Systems (WISES'08)*, pages 191–200, Regensburg, Germany, July 2008.
- [199] R. Leidenfrost and W. Elmenreich. Establishing wireless time-triggered communication using a firefly clock synchronization approach. In *Proceedings of the Sixth International Workshop on Intelligent Solutions in Embedded Systems (WISES'08)*, pages 227–244, Regensburg, Germany, July 2008.
- [200] M. Koplín and W. Elmenreich. Analysis of kalman filter based approaches for fusing out-of-sequence

- measurements corrupted by systematic errors. In *Proceedings of the IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems (MFI'08)*, pages 175–180, 2008.
- [201] W. Elmenreich. Time-triggered fieldbus networks state of the art and future applications. In *Proceedings of the 11th IEEE International Symposium on Object Oriented Real-Time Distributed Computing (ISORC)*, pages 436–442, 2008.
- [202] A. Wasicek and W. Elmenreich. Internet firewalls in the DECOS system-on-a-chip architecture. In *Proceedings of the 5th International Conference on Industrial Informatics*, pages 983–988. IEEE, 2007.
- [203] W. Elmenreich, M. Rosenblattl, and A. Wolf. Fixed point library according to ISO/IEC standard DTR 18037 for atmel avr processors. In *Proceedings of the Fifth International Workshop on Intelligent Solutions in Embedded Systems (WISES'07)*, pages 101–113. IEEE, 2007.
- [204] W. Elmenreich, H. Piontek, and Jörg Kaiser. Interface design for real-time smart transducer networks - examining cosmic, lin, and TTP/A as case study. In *Proceedings of the 15th International Conference on Real-Time and Network Systems*, pages 195–204, Nancy, France, 2007. Institut National Polytechnique de Lorraine.
- [205] W. Elmenreich and G. Klingler. Genetic evolution of a neural network for the autonomous control of a four-wheeled robot. In A. Gelbukh and Ángel Fernando Kuri Morales, editors, *Sixth Mexican International Conference on Artificial Intelligence*, pages 396–406. IEEE Computer Society, 2007.
- [206] W. Elmenreich. A review on system architectures for sensor fusion applications. In *The 5th IFIP Workshop on Software Technologies for Future Embedded & Ubiquitous Systems*, 2007.
- [207] R. Leidenfrost and W. Elmenreich. Establishing wireless time-triggered communication using a firefly clock synchronization approach, 2007. Poster presentation at IEEE International Conference on Industrial Informatics - INDIN 2007, Vienna, Austria.
- [208] A. Kößler, M. Hofer, T. Mair, and W. Elmenreich. A platform for teaching and research on distributed real-time systems, 2007. Poster presentation: IEEE International Conference on Industrial Informatics - INDIN 2007, Vienna, Austria.
- [209] G. Klingler and W. Elmenreich. Design of a universal gateway for the time-triggered fieldbus protocol TTP/A, 2007. Poster presentation: IEEE International Conference on Industrial Informatics - INDIN 2007, Vienna, Austria.
- [210] M. Mauthner, R. Altendorfer, W. Elmenreich, and A. Kirchner. Optimization of sensor, bus, and fusion schedules of a time-triggered sensor fusion system. In *Proceedings of the 2007 IEEE Intelligent Vehicles Symposium (IV)*, pages 570–575, Istanbul, Turkey, 2007.
- [211] M. Mauthner, W. Elmenreich, and A. Kirchner. Analysis of sensor and fusion schedules of a time-triggered sensor fusion system. In *Proceedings of the 10th International Conference on Information Fusion (FUSION)*, pages 1–5, Quebec, Canada, 2007.
- [212] M. Mauthner, W. Elmenreich, A. Kirchner, and D. Boesel. Out-of-sequence measurement treatment in sensor fusion applications: Buffering versus advanced algorithms. In *Workshop Fahrerassistenzsysteme*, pages 20–30, Löwenstein/Höblinsülz, Canada, 2006.
- [213] C. Trödhandl, M. Proske, and W. Elmenreich. Remote target monitoring in embedded systems lab courses using a sensor network. In *The 32nd Annual Conference of the IEEE Industrial Society - IECON'2006*, pages 5433–5438, 2006.
- [214] M. Schlager, W. Elmenreich, and I. Wenzel. Interface design for hardware-in-the-loop simulation. In *Proceedings of the 2006 IEEE International Symposium on Industrial Electronics*, pages 1554–1559, Piscataway, NJ, USA, 2006. IEEE Press.
- [215] B. Rumpler and W. Elmenreich. Considerations on the complexity of embedded real-time system design tasks. In *IEEE International Conference on Computational Cybernetics 2006 (ICCC'06), Proceedings of the*, pages 55–60, 2006.
- [216] C. Paukovits and W. Elmenreich. Meta-modelling in tool support for time-triggered application development. In *Proceedings of the Junior Scientist Conference 2006*, pages 53–54, 2006.
- [217] A. Kößler and W. Elmenreich. Automated solution evaluation during a practical examination. In *Proceedings of the Junior Scientist Conference 2006*, pages 35–36, 2006.
- [218] S. V. Krywult and W. Elmenreich. A portable real-time communication system for embedded systems with heterogeneous hardware. In *Proceedings of the Junior Scientist Conference 2006*, pages 41–42, 2006.
- [219] G. Klingler, A. Kößler, and W. Elmenreich. The smart car - a distributed controlled autonomous robot. In *Proceedings of the Junior Scientist Conference 2006*, pages 33–34, 2006.
- [220] A. Schörgendorfer and W. Elmenreich. Extended confidence-weighted averaging in sensor fusion. In *Proceedings of the Junior Scientist Conference 2006*, pages 67–68, 2006.
- [221] G. Gridling, B. Weiss, W. Elmenreich, and C. Trödhandl. Embedded systems exams with true/false questions: A case study. In *Proceedings of the Second International Conference on Education and Technology*, pages 168–172, 2006.
- [222] W. Elmenreich, C. Trödhandl, and B. Weiss. Embedded systems home experimentation. In *Proceedings of the Second International Conference on Education and Technology*, pages 11–15, 2006.

- [223] W. Elmenreich and A. Schörgendorfer. Fusion of continuous-valued sensor measurements using statistical analysis. In Kenan Tas, Dumitru Baleanu, and J. A. Tenreiro Machado, editors, *Proceedings of the International Symposium on Mathematical Methods in Engineering*, 2006.
- [224] M. Schlager, E. Erkingler, W. Elmenreich, and T. Losert. Benefits and implications of the decos encapsulation approach. In *Proceedings of the 8th International IEEE Conference on Intelligent Transportation Systems*, pages 13–18. IEEE Press, 2005.
- [225] S. Pitzek and W. Elmenreich. Plug-and-play: Bridging the semantic gap between application and transducers. In *Proceedings of the 10th IEEE International Conference on Emerging Technologies and Factory Automation*, pages 799–806, I, 2005.
- [226] C. Paukovits and W. Elmenreich. Model-integrated tool support for real-time embedded systems, 2005. Poster presentation: Siemens PSE Technology Day, Vienna, Austria.
- [227] W. Elmenreich, C. Paukovits, and S. Pitzek. Automatic generation of schedules for time-triggered embedded transducer networks. In W. Elmenreich, editor, *Proceedings of the 10th IEEE International Conference on Emerging Technologies and Factory Automation*, pages 535–541, II, 2005.
- [228] W. Elmenreich and S. V. Krywult. A comparison of fieldbus protocols: LIN 1.3, LIN 2.0, and TTP/A. In S. V. Krywult, editor, *Proceedings of the 10th IEEE International Conference on Emerging Technologies and Factory Automation*, pages 747–753, I, 2005.
- [229] W. Elmenreich, G. Klingler, A. Kößler, and S. V. Krywult. Time-triggered smart transducer networks, 2005. Poster presentation: Siemens PSE Technology Day, Vienna, Austria.
- [230] W. Elmenreich and G. Karsai. Transatlantic collaboration on model-integrated computing for dependable embedded components and systems. In *Workshop on the Collaboration between FP6/ISTand NSF/ITR Projects*. Information Society Technologies/National Science Foundation, 2005.
- [231] T. Losert, W. Elmenreich, and M. Schlager. Semi-automatic compensation of the propagation-delay in fault-tolerant systems. In *Proceedings of the Third International Conference on Communications, Internet, and Information Technology (CIIT 2004)*, pages 455–460. ACTA Press, 2004.
- [232] B. Huber and W. Elmenreich. Wireless time-triggered real-time communication. In *Proceedings of the 2nd Workshop on Intelligent Solutions in Embedded Systems (WISES'04)*, pages 169–182, 2004.
- [233] R. Gallo, M. Delvai, W. Elmenreich, and A. Steininger. Revision and verification of an enhanced UART. In *Proceedings of the 2004 IEEE International Workshop on Factory Communication Systems*, pages 315–318. IEEE, 2004.
- [234] W. Elmenreich and M. Schlager. Simulation-based development of embedded sensor fusion applications. In *Proceedings of the 2nd IEEE International Conference on Computational Cybernetics*, pages 147–153, 2004.
- [235] W. Elmenreich, S. Pitzek, and M. Schlager. Modeling distributed embedded applications on an interface file system. In *Proceedings of the Seventh IEEE International Symposium on Object-Oriented Real-Time Distributed Computing*, pages 175–182. IEEE Computer Society Press, 2004.
- [236] W. Steiner and W. Elmenreich. Automatic recovery of the TTP/A sensor/actuator network. In W. Elmenreich, editor, *Proceedings of the First Workshop on Intelligent Solutions in Embedded Systems (WISES'03)*, pages 25–37, 2003.
- [237] R. Seemann, F. Bruckner, M. Figl, A. Wagner, K. Schicho, and W. Elmenreich. Applying a real-time interface to an optical tracking system. In *Proceedings of the Workshop on Augmented Reality in Computer Aided Surgery*, page 87, 2003.
- [238] S. Pitzek and W. Elmenreich. Configuration and management of a real-time smart transducer network. In *Proceedings of the IEEE Conference on Emerging Technologies and Factory Automation*, pages 407–414, 2003.
- [239] W. Elmenreich and S. Pitzek. Smart transducers - principles, communications, and configuration. In *Proceedings of the 7th IEEE International Conference on Intelligent Engineering Systems (INES)*, pages 510–515, 2003.
- [240] W. Elmenreich, R. Obermaisser, and P. Peti. A model for reactive systems supporting varying degrees of synchrony. In *Proceedings of IEEE International Conference on Computational Cybernetics*, pages 275–280, 2003.
- [241] W. Elmenreich and R. Ipp. Introduction to TTP/C and TTP/A. In *Proceedings of the Workshop on Time-Triggered and Real-Time Communication Systems*, Manno, Switzerland, 2003.
- [242] W. Elmenreich, G. Bauer, and H. Kopetz. The time-triggered paradigm. In *Proceedings of the Workshop on Time-Triggered and Real-Time Communication Systems*, Manno, Switzerland, 2003.
- [243] W. Elmenreich. Intelligent methods for embedded systems. In *Proceedings of the Workshop on Intelligent Solutions in Embedded Systems*, pages 3–11, 2003.
- [244] W. Elmenreich. Fault-tolerant certainty grid. In *Proceedings of the 11th International Conference on Advanced Robotics*, pages 1576–1581, 3, 2003.
- [245] M. Delvai, U. Eisenmann, and W. Elmenreich. Intelligent UART module for real-time applications. In *Proceedings of the First Workshop on Intelligent Solutions in Embedded Systems*, pages 177–185, 2003.

- [246] S. Pitzek and W. Elmenreich. Managing fieldbus systems. In *Proceedings of the Work-in-Progress Session of the 14th Euromicro International Conference*, pages 13–16, 2002.
- [247] P. Peti, R. Obermaisser, W. Elmenreich, and T. Losert. An architecture supporting monitoring and configuration in real-time smart transducer networks. In *Proceedings of the First IEEE International Conference on Sensors*, pages 1479–1484, 2, 2002.
- [248] W. Elmenreich, L. Schneider, and R. Kirner. A robust certainty grid algorithm for robotic vision. In *Proceedings of the 6th IEEE International Conference on Intelligent Engineering Systems (INES)*, 2002.
- [249] W. Elmenreich and P. Peti. Achieving dependability in time-triggered networks by sensor fusion. In *Proceedings of the 6th IEEE International Conference on Intelligent Engineering Systems (INES)*, pages 167–172, 2002.
- [250] W. Elmenreich and R. Obermaisser. A standardized smart transducer interface. In *Proceedings of the IEEE International Symposium on Industrial Electronics (ISIE'02)*, 2002.
- [251] W. Elmenreich, W. Haidinger, P. Peti, and L. Schneider. New node integration for master-slave fieldbus networks. In *Proceedings of the 20th International Conference on Applied Informatics (AI 2002)*, pages 173–176, 2002.
- [252] W. Elmenreich and M. Delvai. Time-triggered communication with UARTs. In *Proceedings of the 4th IEEE International Workshop on Factory Communication Systems*, pages 97–104, 2002.
- [253] S. Bruckner, R. Seemann, and W. Elmenreich. Applying a real-time interface to an optical tracking system. In *Proceedings of the Work-in-Progress Session of the 14th Euromicro International Conference*, pages 49–52, 2002.
- [254] R. Schlatterbeck and W. Elmenreich. TTP/A: A low cost highly efficient time-triggered fieldbus architecture. In *Proceedings of the SAE World Congress 2001*, pages 1–4, 2001.
- [255] R. Obermaisser, P. Peti, W. Elmenreich, and T. Losert. Monitoring and configuration in a smart transducer network. In *Proceedings of the IEEE Workshop on Real-Time Embedded Systems*, 2001.
- [256] W. Elmenreich and S. Pitzek. Using sensor fusion in a time-triggered network. In *Proceedings of the 27th Annual conference of the IEEE Industrial Electronics Society*, pages 369–374, 2001.
- [257] W. Elmenreich and S. Pitzek. The time-triggered sensor fusion model. In *Proceedings of the 5th IEEE International Conference on Intelligent Engineering Systems (INES)*, pages 297–300, 2001.
- [258] W. Elmenreich, W. Haidinger, and H. Kopetz. Interface design for smart transducers. In *Proceedings of the IEEE Instrumentation and Measurement Technology Conference (IMTC)*, pages 1642–1647, Vol. 3, 2001.
- [259] H. Kopetz, M. Holzmann, and W. Elmenreich. A universal smart transducer interface: TTP/A. In *Proceedings of the third IEEE International Symposium on Object-oriented Real-time distributed Computing (ISORC 2000)*, 2000.
- [260] H. Kopetz, W. Elmenreich, and C. Mack. A comparison of LIN and TTP/A. In *Proceedings of the 3rd IEEE International Workshop on Factory Communication Systems (WFCS 2000)*, pages 99–107, 2000.

Patents and Patent Applications

- [261] H. Adam, W. Elmenreich, and C. Bettstetter. Apparatus and method for cooperative relaying in wireless systems using an extended channel reservation, 2011. Filed November 23 2009, EP 2326030.
- [262] H. Adam, W. Elmenreich, and C. Bettstetter. Cooperative relay scheme having backward compatibility, 2011. Filed November 23 2009, EP 2326029.

Standardization

- [263] S. Aslam-Mir, W. Haidinger, W. Elmenreich, T. Losert, and H. Kopetz. OMG Smart Transducers, v1.0, 2003. Smart Transducers Specification, Object Management Group.