

Howey Publications Oct 2021 to Jan 2025

Journal Articles

- [1] L. D. Couto, J. Reniers, D. Zhang, D. A. Howey, and M. Kinnaert, “Degradation monitoring and characterization in lithium-ion batteries via the asymptotic local approach,” *IEEE Transactions on Control Systems Technology*, 2024.
- [2] W. He, L. O. Valøen, K. V. Olsen, K. M. Kjekka, B. M. Fredriksen, M. Petiteau, A. Touat, H. Såtendal, A. Howie, D. Howey, R. Kandepu, and C. F. Hammershøj, “Lessons learned from the commercial exploitation of marine battery energy storage systems,” *Journal of Energy Storage*, vol. 87, 2024.
- [3] V. Kumtepli, R. Perriment, and D. A. Howey, “DTW-C++: Fast dynamic time warping and clustering of time series data,” *Journal of Open Source Software*, vol. 9, no. 101, p. 6881, 2024.
- [4] T. Li, Z. Zhou, A. Thelen, D. A. Howey, and C. Hu, “Predicting battery lifetime under varying usage conditions from early aging data,” *Cell Reports Physical Science*, vol. 5, no. 4, 2024.
- [5] S. Montoya-Bedoya, E. Garcia-Tamayo, D. Rohrbach, J. P. Gaviria-Cardona, H. V. Martinez-Tejada, B. Planden, D. A. Howey, W. F. Florez, R. A. Valencia, and M. Bernal, “Quantitative ultrasound spectroscopy for screening cylindrical lithium-ion batteries for second-life applications,” *Batteries and Supercaps*, vol. 7, no. 5, 2024.
- [6] H. Movahedi, S. Pannala, J. Siegel, S. J. Harris, D. Howey, and A. Stefanopoulou, “Extra throughput versus days lost in V2G services: Influence of dominant degradation mechanism,” *Journal of Energy Storage*, vol. 104, 2024.
- [7] M. Dubarry, D. Howey, and B. Wu, “Enabling battery digital twins at the industrial scale,” *Joule*, vol. 7, no. 6, pp. 1134–1144, 2023.
- [8] P. Grunewald, M. Aunedi, S. M. Nosratabadi, T. Morstyn, I. Savelli, V. Kumtepli, and D. Howey, “Taking the long view on short-run marginal emissions: How much carbon does flexibility and energy storage save?” *Oxford Open Energy*, vol. 2, 2023.
- [9] N. Hallemans, D. Howey, A. Battistel, N. F. Saniee, F. Scarpioni, B. Wouters, F. La Mantia, A. Hubin, W. D. Widanage, and J. Lataire, “Electrochemical impedance spectroscopy beyond linearity and stationarity—a critical review,” *Electrochimica Acta*, vol. 466, 2023.
- [10] T. L. Kirk, A. Lewis-Douglas, D. Howey, C. P. Please, and S. Jon Chapman, “Nonlinear electrochemical impedance spectroscopy for lithium-ion battery model parameterization,” *Journal of the Electrochemical Society*, vol. 170, no. 1, 2023.
- [11] J. M. Reniers and D. A. Howey, “Digital twin of a MWh-scale grid battery system for efficiency and degradation analysis,” *Applied Energy*, vol. 336, 2023.
- [12] P. M. Attia, A. Bills, F. Brosa Planella, P. Dechent, G. Dos Reis, M. Dubarry, P. Gasper, R. Gilchrist, S. Greenbank, D. Howey, O. Liu, E. Khoo, Y. Preger, A. Soni, S. Sripad, A. G. Stefanopoulou, and V. Sulzer, “Review—‘Knees’ in lithium-ion battery aging trajectories,” *Journal of the Electrochemical Society*, vol. 169, no. 6, 2022.
- [13] S. Greenbank and D. Howey, “Automated feature extraction and selection for data-driven models of rapid battery capacity fade and end of life,” *IEEE Transactions on Industrial Informatics*, vol. 18, no. 5, pp. 2965–2973, 2022.
- [14] S. Greenbank and D. A. Howey, “Piecewise-linear modelling with automated feature selection for Li-ion battery end-of-life prognosis,” *Mechanical Systems and Signal Processing*, vol. 184, 2022.

- [15] J. Lin, H. N. Chu, D. A. Howey, and C. W. Monroe, "Multiscale coupling of surface temperature with solid diffusion in large lithium-ion pouch cells," *Communications Engineering*, vol. 1, no. 1, 2022.
- [16] J. Lin, H. N. Chu, C. W. Monroe, and D. A. Howey, "Anisotropic thermal characterisation of large-format lithium-ion pouch cells," *Batteries and Supercaps*, vol. 5, no. 5, 2022.
- [17] A. Wang, S. O'Kane, F. Brosa Planella, J. L. Houx, K. O'Regan, M. Zyskin, J. Edge, C. Monroe, S. Cooper, D. Howey, E. Kendrick, and J. Foster, "Review of parameterisation and a novel database (LiionDB) for continuum Li-ion battery models," *Progress in Energy*, vol. 4, no. 3, 2022.
- [18] A. A. Wang, S. Greenbank, G. Li, D. A. Howey, and C. W. Monroe, "Current-driven solvent segregation in lithium-ion electrolytes," *Cell Reports Physical Science*, vol. 3, no. 9, 2022.
- [19] L. Ward, S. Babinec, E. J. Dufek, D. A. Howey, V. Viswanathan, M. Aykol, D. A. Beck, B. Blaiszik, B.-R. Chen, G. Crabtree, S. Clark, V. De Angelis, P. Dechent, M. Dubarry, E. E. Eggleton, D. P. Finegan, I. Foster, C. B. Gopal, P. K. Herring, V. W. Hu, N. H. Paulson, Y. Preger, D. Uwe-Sauer, K. Smith, S. W. Snyder, S. Sripad, T. R. Tanim, and L. Teo, "Principles of the battery data genome," *Joule*, vol. 6, no. 10, pp. 2253–2271, 2022.
- [20] M. E. Wojtala, A. A. Zülke, R. Burrell, M. Nagarathinam, G. Li, H. E. Hoster, D. A. Howey, and M. P. Mercer, "Entropy profiling for the diagnosis of NCA/Gr-SiO_x Li-ion battery health," *Journal of the Electrochemical Society*, vol. 169, no. 10, 2022.
- [21] A. Aitio and D. A. Howey, "Predicting battery end of life from solar off-grid system field data using machine learning," *Joule*, vol. 5, no. 12, pp. 3204–3220, 2021.
- [22] A. Mistry, A. Verma, S. Sripad, R. Ciez, V. Sulzer, F. Brosa Planella, R. Timms, Y. Zhang, R. Kurchin, P. Dechent, W. Li, S. Greenbank, Z. Ahmad, D. Krishnamurthy, A. M. Fenton, K. Tenny, P. Patel, D. Juarez Robles, P. Gasper, A. Colclasure, A. Baskin, C. D. Scown, V. R. Subramanian, E. Khoo, S. Allu, D. Howey, S. Decaluwe, S. A. Roberts, and V. Viswanathan, "A minimal information set to enable verifiable theoretical battery research," *ACS Energy Letters*, vol. 6, no. 11, pp. 3831–3835, 2021.

Conference Papers

- [23] M. Adachi, B. Planden, D. A. Howey, M. A. Osborne, S. Orbell, N. Ares, K. Muandet, and S. L. Chau, "Looping in the human: Collaborative and explainable Bayesian optimization," in *Proceedings of Machine Learning Research*, vol. 238, 2024, pp. 505–513.
- [24] V. Kumtepli, H. Hesse, T. Morstyn, S. M. Nosratabadi, M. Aunedi, and D. A. Howey, "Depreciation cost is a poor proxy for revenue lost to aging in grid storage optimization," in *Proceedings of the American Control Conference*, 2024, pp. 701–706.
- [25] J. P. Ross, E. Chatzinikolaou, D. F. Frost, S. R. Duncan, and D. A. Howey, "Comparison between battery cell level dynamics and pack level dynamics using equivalent circuit models," in *Proceedings of the American Control Conference*, 2024, pp. 713–718.
- [26] M. Adachi, Y. Kuhn, B. Horstmann, A. Latz, M. A. Osborne, and D. A. Howey, "Bayesian model selection of lithium-ion battery models via Bayesian quadrature," in *IFAC-PapersOnLine*, vol. 56, 2023, pp. 10 521–10 526.
- [27] R. Perriment, V. Kumtepli, M. McCulloch, and D. Howey, "Lead-acid battery lifetime extension in solar home systems under different operating conditions," in *IEEE PES/IAS PowerAfrica*, 2023.
- [28] Z. Zhou and D. A. Howey, "Bayesian hierarchical modelling for battery lifetime early prediction," in *IFAC-PapersOnLine*, vol. 56, 2023, pp. 6117–6123.

- [29] N. E. Courtier, R. Drummond, P. Ascencio, L. D. Couto, and D. A. Howey, “Discretisation-free battery fast-charging optimisation using the measure-moment approach,” in *European Control Conference, ECC*, 2022, pp. 628–634.
- [30] L. D. Couto, R. Drummond, D. Zhang, T. Kirk, and D. A. Howey, “Identifiability of lithium-ion battery electrolyte dynamics,” in *Proceedings of the American Control Conference*, 2022, pp. 1087–1093.
- [31] M. E. Wojtala, F. B. Planella, A. A. Zulke, H. E. Hoster, and D. A. Howey, “Investigating changes in transport, kinetics and heat generation over NCA/Gr-SiOx battery lifetime,” in *IEEE Vehicle Power and Propulsion Conference, VPPC*, 2022.

Conference Abstracts

- [32] N. Hallemans, D. Howey, A. Battistel, F. La Mantia, D. Widanalage, A. Hubin, and J. Lataire, “Electrochemical impedance spectroscopy beyond linearity and stationarity,” in *Electrochemical Society Meeting Abstracts 245*, The Electrochemical Society, Inc., 2024, pp. 245–245.
- [33] M. E. Wojtala, A. A. Zulke, R. Burrell, M. P. Mercer, H. Hoster, and D. Howey, “Entropy hysteresis during lithiation/delithiation of NCA/Gr-Si battery subjected to accelerated calendar ageing and cycle ageing,” in *Electrochemical Society Meeting Abstracts 241*, The Electrochemical Society, Inc., 2022, pp. 528–528.

Other

- [34] V. Kumtepli and D. A. Howey, “Preview: Understanding battery aging in grid energy storage systems,” *Joule*, vol. 6, no. 10, pp. 2250–2252, 2022.

Patents and applications

- [35] D. Frost and D. Howey, “Smart energy storage cells, control method and system,” 2023.