

AI-powered Battery Research and Innovation at ArtificaX & ÖzönderLab

Assoc. Prof. Şener Özönder is the founder of ArtificaX Technologies and faculty at the Institute for Data Science & Artificial Intelligence, Boğaziçi University, Istanbul, Turkey and principal investigator at ÖzönderLab. At ÖzönderLab, we harness the power of AI and quantum and molecular simulations to accelerate discovery of new materials for next generation batteries that have special use cases. At ArtificaX, we develop our cloud-based battery monitoring system, Battelligence (www.battelligence.com) serving OEMs and electric vehicle and fleet owners.

Our core capabilities:

- Discovery of innovative anode, cathode and electrolytes via density functional theory, molecular dynamics,
- Accelerated virtual screening of materials via active learning loops with neural networks,
- Battery time series data (voltage, current, temperature) modelling with machine learning and estimation of state of health (SoH), remaining useful life (RUL) and anomaly detection for predictive and preventive maintenance,
- Cycling data collection with a temperature controlled cabin,
- Detection of battery tampering for deceptive state of health and second life valuation,
- Cloud platform serving SoX and RUL estimations via an API by using current, voltage and temperature time series data collected from EVs real-time (www.battelligence.com).

Interested in Horizon battery calls.

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