ACN-Portal - New Data and Tools for EV Charging Research

1 message

Lee, Zachary J. (Zach) <zlee@caltech.edu> Fri, Dec 6, 2019 at 8:33 AM
Reply-to: Lee, Zachary J. (Zach) <zlee@caltech.edu>
To: POWER-GLOBE@listserv.nodak.edu

Dear Colleagues,

The integration of millions of electric vehicles (EVs) into the grid will require advanced control algorithms. However, a lack of data, simulators, and testbeds has hampered research in practical algorithms for EV charging. To help fill this gap in the community, we are releasing the Adaptive Charging Network Research Portal.

This portal includes:

1. **ACN-Data** - a publicly accessible dataset of over 46,000 real charging sessions, including data from Caltech, JPL, and an office building. This dataset also includes high-resolution (5s) time-series data of control signals and actual charging current. The data is available via a web interface or through an API (https://ev.caltech.edu/dataset). The dataset is growing with new sessions added daily and several additional sites coming soon.
2. **ACN-Sim** - a data-driven simulation environment for evaluating EV charging algorithms and infrastructure designs based on real data from ACN-Data and realistic models developed from actual charging systems. The simulator is open source and available on GitHub (https://github.com/zach401/acnportal).
3. **ACN-Live** - a framework for field testing online algorithms by controlling real charging stations, coming soon!

For more info about the portal, see ev.caltech.edu We also have several papers describing the parts of ACN-Portal and their use at ev.caltech.edu/research. We hope these data and tools will be helpful to the community.

We are still actively developing this suite of tools. Current work includes integrating ACN-Sim with grid-level simulators to analyze the effect of large-scale EV charging on the grid, as well as integration with OpenAI Gym for Reinforcement Learning applications in EV charging. If you have questions or are interested in getting involved with the open-source ACN-Sim, reach out to me at zlee@caltech.edu or ev-help@caltech.edu.

Best,
Zach Lee
