

- An Agent-Based Information System for Electric Vehicle Charging Infrastructure Deployment (*Timothy Sweda, Diego Klabjan - Northwestern University*)

The current scarcity of public charging infrastructure is one of the major barriers to mass household adoption of plug-in electric vehicles (PEVs). Although most PEV drivers can recharge their vehicles at home, the limited driving range of the vehicles restricts their usefulness for long-distance travel. In this work, an agent-based information system is presented for identifying patterns in residential PEV ownership and driving activities to enable strategic deployment of new charging infrastructure. Driver agents consider their own driving activities within the simulated environment, in addition to the presence of charging stations and the vehicle ownership of others in their social network, when purchasing a new vehicle. Aside from conventional vehicles, drivers may select among multiple electric alternatives, including two PEV options. The Chicagoland area is used as a case study to demonstrate the model, and several different deployment scenarios are analyzed.