GRADUATE RESEARCH ASSISTANT POSITION!

Enhancement of Electric Vehicle Charging Stations and Grid Integration to Address Climate Change through AI-Driven Solutions

The transition to electric vehicles (EVs) is crucial for mitigating climate change by reducing greenhouse gas emissions and reliance on fossil fuels. However, as EV adoption increases the installation of numerous EV charging stations (EVCS) poses challenges to electric grids, particularly in dense communities. This societal issue highlights a key knowledge gap: how can we optimize the integration of EVCS into the grid without overburdening existing infrastructure? Our research aims to address this by exploring artificial intelligence (AI)-driven methods to enhance grid efficiency and management, ensuring that EVCS deployment supports both sustainability and grid resilience. Intelligent battery control was recently studied, but EVCS's effect on the grid as controlled through the use of AI has not yet been addressed. The overall goal of this project is to model the electric grid of California State University, Northridge (CSUN), as a representative dense community, to understand and mitigate the negative impacts of EV charging infrastructure. The project is expected to deliver AI-driven solutions that optimize electric grid efficiency for EV charging stations, reducing the risk of grid overload in dense urban areas. Additionally, it will provide actionable insights for strategic energy planning, supporting the sustainable expansion of EV infrastructure.

Objective 1. Model the CSUN electric grid as a representative for dense areas.
Objective 2. Leverage machine learning for load prediction.
Objective 3. Conduct survey to understand EV owner behavior and load management patterns.

Benefits: $4,632 Salary + $486 Fringe Benefits

If you are interested, p lease send your CV to moghadam@csus.edu