LUCIA GAUCHIA

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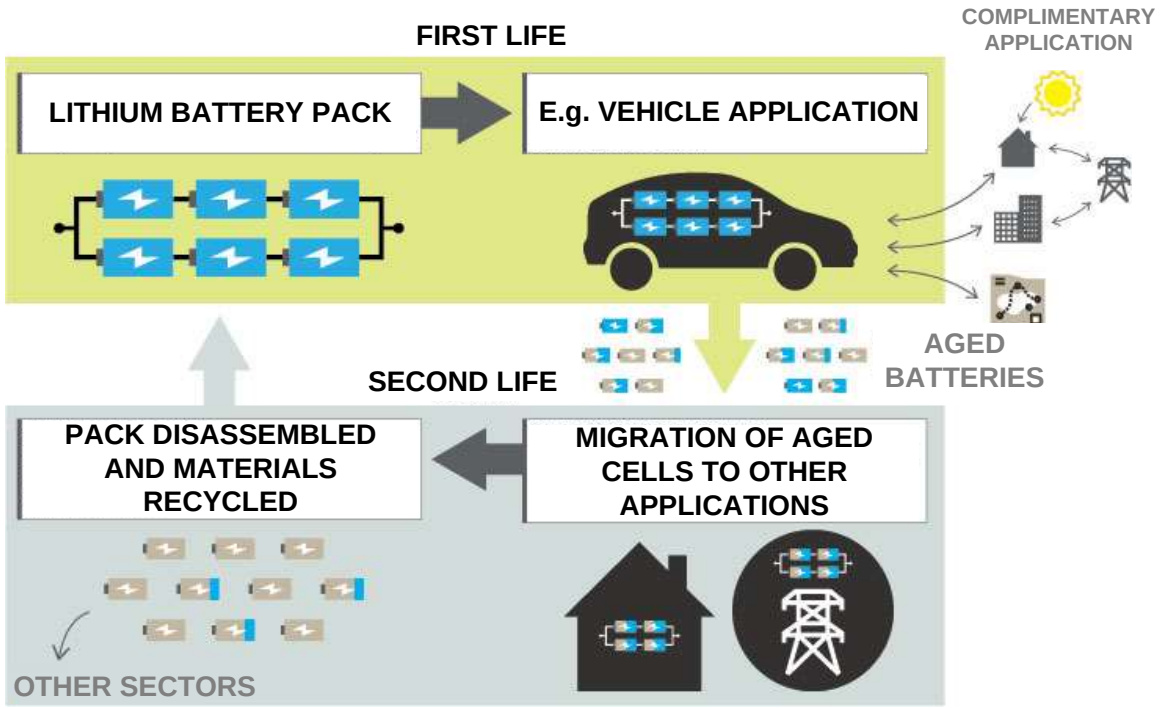
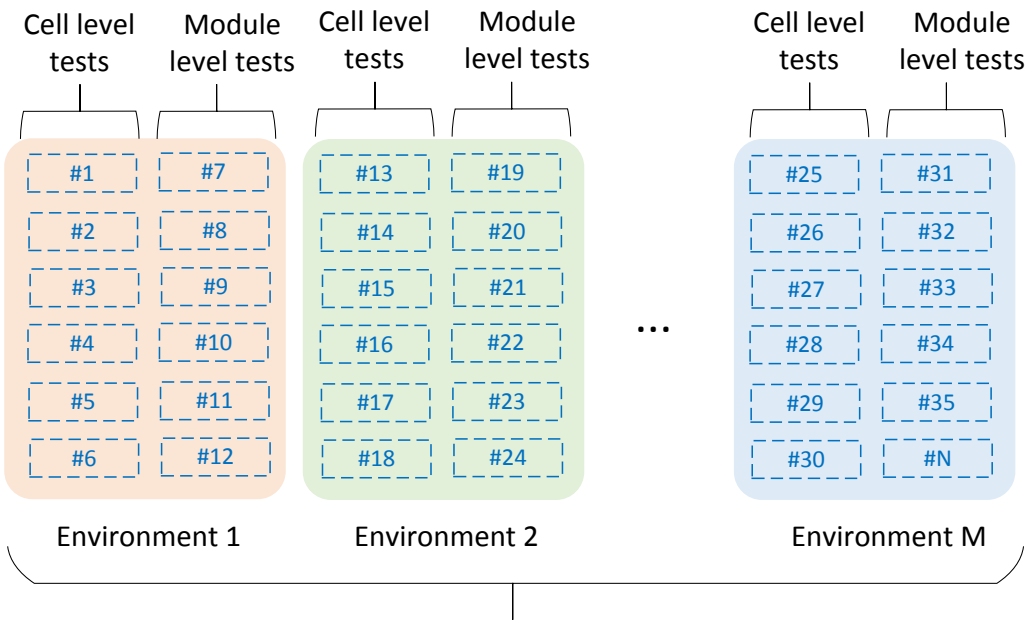


Battery energy storage

- Use ecological-based approaches:
  - Migration between applications
  - Aging across populations
  - Incomplete data/information

- Funded NSF CAREER Award (2017-2022)

Large scale immersive testing in real-life conditions

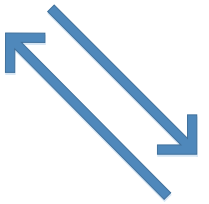


Battery cells and modules (detached from mini lab) in thermal chambers for controlled temperature testing cases

Each environment for 1st and 2nd life and its variations modeled in the Raspberry Pi 3 and run in real-time

Day data recorded in central workstation

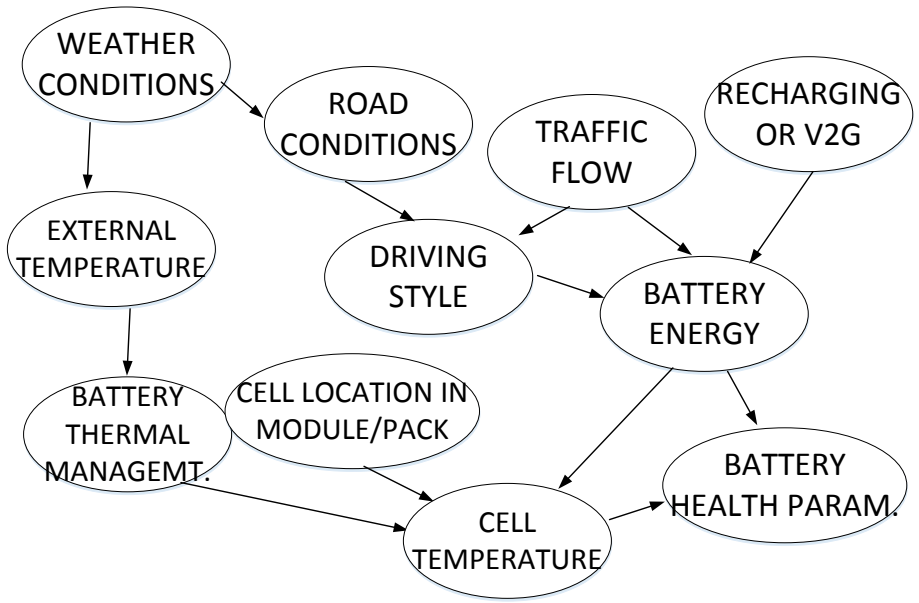
Data display on lab wall-mounted screen



1 student per mini-lab. Remote access through Ethernet

Mobility through battery multiple lives

- Develop causality networks that consider ecosystem surrounding the battery
- Data-enabled approach
- Adaptable for each life
- Formulate multi-scale (space and time) theory



Collaborations

- Testing at APSRC directed by Prof. Naber (ME-EM)
- Real GM vehicles
- PNM utility PV-storage installation Albuquerque (NM)
- With real EV and HEV used cells from SpiersNT (Oklahoma)

- Prof. Zhang (CEE): Traffic flow and driving style effect
- Prof. Brown (CS): Bayesian networks
- Prof. Froese (Forestry): Ecological testing and modeling