## Summary of this week



- This week, you learned:
  - $\Box$  That the generic MMSE solution is  $\mathbb{E}[x_k \mid \mathbb{Y}_k]$
  - □ That generic Gaussian probabilistic inference solution uses predict/correct recursion to find this solution
  - □ Predict and correct steps both have three sub-steps
  - □ With certain assumptions, can specialize these steps to linear Kalman filter

Dr. Gregory L. Plett | University of Colorado Colorado Springs

Battery State-of-Charge (SOC) Estimation | Introducing the linear Kalman filter as a state estimator | 1 of 3

3.2.6: Where from here?

## Where from here?



- Will apply linear KF to linearized battery-cell model to help visualize the steps involved
- See how to simulate random systems as preparation for evaluating KF via simulation
- Learn how to implement KF in Octave/MATLAB and evaluate results computed by the KF
- Some "improvements" to KF to handle real-world numeric round-off issues
- How KF also provides helpful ways to detect sensor faults



Dr. Gregory L. Plett University of Colorado Colorado Springs

Battery State-of-Charge (SOC) Estimation | Introducing the linear Kalman filter as a state estimator

3.2.6: Where from here?

## **Credits**



Credits for photos in this lesson

■ "Map" on slide 2: Pixabay license

(https://pixabay.com/en/service/license/), from

https://pixabay.com/en/map-treasure-pirate-309928/