Supplementary Reading: The Linear Kalman Filter

To learn more about the Linear Kalman Filter, check out the resources below:

- Here's an interesting blog post by Tim Babb explaining the Kalman filter. Babb is the Lighting Optimization Lead for Pixar Animation Studios.
- You can find an extensive, detailed treatment of the Kalman filter in Chapter 3, Section 3 of Timothy D. Barfoot, State Estimation for Robotics (2017) (available for free).
- Read another detailed explanation in Chapter 5, Section 1 of Dan Simon, Optimal State Estimation (2006).
- Explore a variety of great resources related to the Kalman filter on this page maintained by Greg Welch from the University of Central Florida and Gary Bishop from the University of North Carolina at Chapel Hill.
- Read Kalman's original article on the linear filter, courtesy of Welch and Bishop and hosted at UNC at Chapel Hill (available for free).

Supplementary Reading: The Kalman Filter - The Bias BLUEs

To learn more about the Kalman filter, check out the resources below:

- Read an overview of the properties of the Kalman filter in Chapter 5, Section 2 of Dan Simon, Optimal State Estimation (2006).
- Read more about estimator bias on Wikipedia.

Supplementary Reading: Going Nonlinear - The Extended Kalman Filter

To learn more about the nonlinear Kalman filtering and the extended Kalman filter, check out the resources below:

- To learn more about nonlinear Kalman filtering, check out this article by Dan Simon (available for free).
- A detailed explanation of linearization and how it relates to the EKF can be found in Chapter 13, Sections 1 and 2 of Dan Simon, Optimal State Estimation (2006).

Lesson 4 Supplementary Reading: An Improved EKF - The Error State Kalman Filter

To learn more about the Error State Kalman Filter, check out the resources below:

- Review an important paper by Stergios Roumeliotis et al. on the use of the error-state Kalman filter for mobile robot localization. This paper deals with the important case of aided localization, which in the topic of Module 5.

- Read Section 5 of a technical report by Joan Solà, Quaternion kinematics for the error-state Kalman filter, 2017 (available for free). Note that this is an advanced reading.

Supplementary Reading: An Alternative to the EKF - The Unscented Kalman Filter

To learn more about Unscented Kalman Filters, check out the resources below:

- A research paper on The Unscented Kalman Filters for Nonlinear Estimation by the Oregon Graduate Institute of Science & Technology (free)
- Read a tutorial on the Unscented Kalman Filter by Gabriel A. Terejanu from the University of Buffalo (available for free).
- Dig into the original article by Simon Julier and Jeffrey Uhlmann that introduced the unscented Kalman filter.