Lesson 1 Supplementary Reading: Light Detection and Ranging Sensors

For more information on LIDAR sensors, check out the resources below:

- Read Chapter 6, Section 4.3 of Timothy D. Barfoot, State Estimation for Robotics (2017) (available for free).
- Read the Wikipedia article on LIDAR sensors.
- Read Chapter 4, Section 1.9 of Roland Siegwart, Illah R. Nourbakhsh, Davide Scaramuzza, Introduction to Autonomous Mobile Robots (2nd ed., 2011).

Lesson 2 Supplementary Reading: LIDAR Sensor Models and Point Clouds

To learn more about LIDAR sensor models and point clouds, check out the resources below:

- Read Chapter 6, Sections 1 and 2 of Timothy D. Barfoot, State Estimation for Robotics (2016) (available for free).
- Explore the functionality available in the Point Cloud Library (PCL) at http://pointclouds.org/.

Supplementary Reading: Pose Estimation from LIDAR Data

To learn more about Pose Estimation from LIDAR data, check out the resources below:

- Read Chapter 8, Section 1.3 of Timothy D. Barfoot, State Estimation for Robotics (2016) (available for free).
- Read the Wikipedia articles on point set registration and ICP.
- Examine a method to produce an accurate closed-form estimate of ICP's covariance from Andrea Censi of the University of Rome "La Sapienza" (now at ETH Zurich).
- Read a research paper on LIDAR and Inertial Fusion for Pose Estimation by Non-linear Optimization, available for free on arXiv.
- Review the original papers by Yang Chen and Gerard Medioni (1991), and Paul Besl and Neil McKay (1992), that first described (variations of the) iterative closest point (ICP) algorithm.