ECE 239AS Project Directions

Option 1: Carrier Frequency Synchronization

Each SDR has its own carrier frequency offset. When you transmit between 2 of them, you get an offset between signals. Work on correcting this CFO for OFDM

Option 2: Optimize Pilots for Goodput

Pilots are used to estimate the channel and correct frequency selective channels. How often should you transmit pilots? On what channels? How should you interpolate those pilots to get the whole channel? What's the channel coherence time/BW (coherence block)? Can you correct this given a codebook of time-frequency pilot grids? Vary carrier spacing, and other params.

Option 3: PAPR

How does nonlinearity of amplifiers affect the OFDM model? Put an attenuator on the SDR and crank up the power. See how performance degrades as you vary different parameters.