EENG: 680
Synthetic Aperture Radar (SAR) Signal and Image Processing

Required Textbook:
- *Synthetic Aperture Radar Signal Processing with Matlab Algorithms* (Soumekh)

Other Textbooks:
- *Spotlight Mode Synthetic Aperture Radar* (Jakowatz)
- *Spotlight Synthetic Aperture Radar* (Carrara)
- *Introduction to Radar Systems* (Skolnik)
- *Introduction to Airborne Radar* (Stimson)

Week 1: SAR Introduction, SAR Range Imaging
Week 2: SAR Range Imaging, Cross-Range Imaging
Week 3: Cross-Range Imaging, Radiation Pattern
Week 4: Stripmap SAR,
Week 5: Spotlight SAR
Week 6: Circular SAR / ISAR, Digital Spotlight
Week 7: Polar Format Imaging, Backprojection Imaging
Week 8: Fast Backprojection Imaging, High Performance Computing: Linux Cluster vs. FPGA
Week 9: Motion Compensation
Week 10: Autofocus

Matlab Assignments (6): 40%
Range Imaging, Cross-Range Imaging, Radiation Pattern, Stripmap SAR, Spotlight SAR, CSAR/ISAR
Projects: 30%
Polar Format Imaging, Backprojection Imaging

Midterm and Final: 30%

Data for Projects:
- AFRL SAR Backhoe data (public released)