Matlah Simulation Tools: Matlab/Simulink Function: Algorithm validation Matlab and Vivado hls Co-Simulation Tools: Matlab/Simulink, Vivado hls Function: Hardware specific Simulation FPGA-in-the-Loop test Tools: Matlab/Simulink, Vivado hls, Vivado, Gcc Compiler, Zyng Function: Hardware Functionality Simulation Experimental test Vivado, Gcc Compiler, Zyng Tools: Function: Control Alogorithm Implementation