

ENSC USRA invitation –summer 2021:

Simulation of Electromechanical devices and their Control

Supervisor

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Electromechanical motion devices are used in a wide variety of applications. Goals of this project are to build Simulink models of the system comprising the induction motor and its control drive and to determine good parameter values of the model through simulation and optimization.

The coop student is to build components of the Simulink model, to run computer simulation and collect data, and to interpret the results. Knowledge and experience in Simulink and Matlab are preferred, but this project welcomes any capable student who is willing to learn to use these tools. Learning objectives will be adjusted to the backgrounds of the student participating in this project.

Example learning objectives are:

- 1) Learning to use the simulator, Simulink
- 2) Learning about the induction motor models
- 3) Learning about control drives
- 4) Learning the relation between continuous-time system (e.g., real motor) and discrete-time system and conversion between them

The student will have a weekly meeting with the supervisor (Prof. Daniel Lee) in person and report the progress of the project and learning. The supervisor will direct/advise the student's activities.