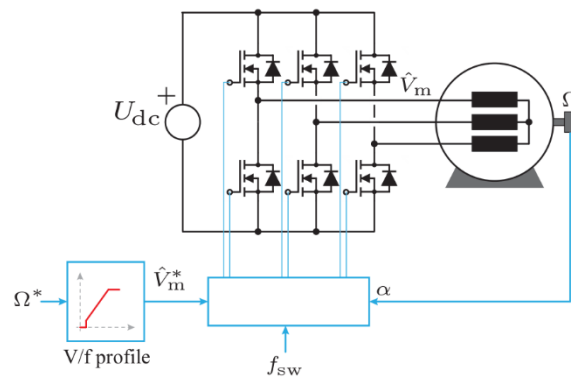


## Bachelor Thesis

### Enhancements in V/f Control for Induction Motor Drive System Efficiency



**Background:** The team at iDES has reinvigorated the traditional V/f control methodology with a novel innovation that promises to reduce inverter stage losses significantly, thereby streamlining the control process for induction motors. This resurgence of interest in V/f control techniques is driven by the potential for more efficient operation and simplified control dynamics.

**Objectives:** The thesis will focus on a deep understanding of V/f control nuances, aiming to incorporate new control strategies contributing to loss reduction at the inverter stage. By delving into the intricacies of V/f control, the goal is to apply these theoretical insights practically, leading to enhanced efficiency in induction machine operation.

**Approach:** Begin with a foundational study of V/f control in induction motors. Progress to applying and verifying theoretical concepts through rigorous simulation, ensuring a robust understanding of the control mechanisms and their efficiencies.

**Tools/Software:** Utilize the power of MATLAB and PLECS to simulate and test control strategies, providing hands-on experience in optimizing motor control.

**Prerequisites:** A genuine interest in drive systems and power electronics is bolstered by foundational knowledge.

This thesis presents a unique opportunity to contribute to drive systems by refining a classic control technique through modern innovation.

#### Application and Supervision:

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