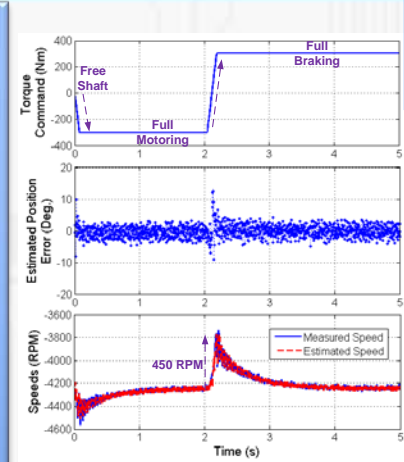


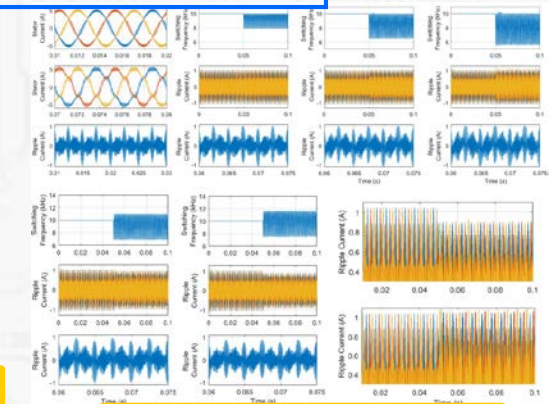
- High power motor drives
- Advanced control for power electronics and motor drives
- Traction inverter design
- Online condition monitoring of power converters
- Sustainable energy

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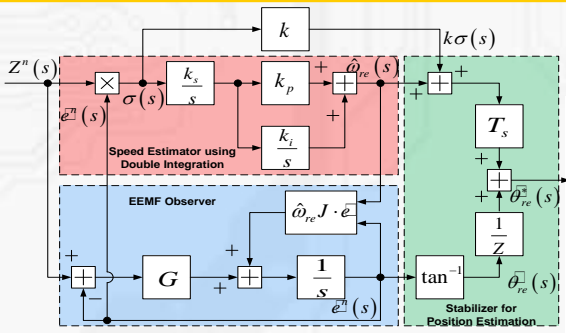
Sensorless Control with 4-Quadrant Operation Capability

## Advanced Control of Motor Drives



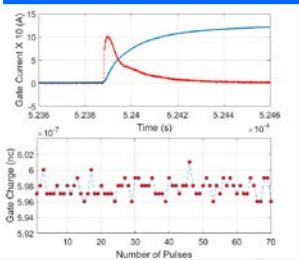
Frequency Modulated PWM

## Mechanical Speed & Rotor Position Estimation

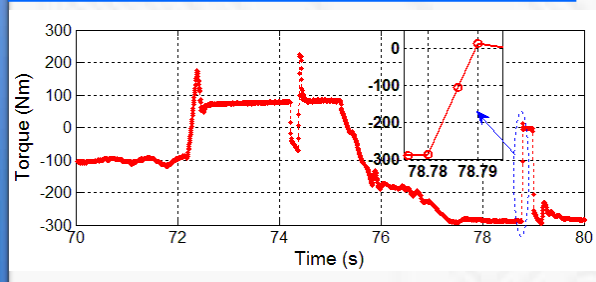


Junction Temperature ( $T_j$ ) Estimation

## Online Condition Monitoring and State Estimation



## High Power Traction Inverter Design, Control & Validation



Sensorless Torque Control of a High Power IPM Motor Drives for Heavy Equipment

