

Project Portfolio

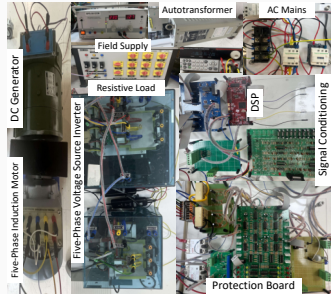
Hammad Hasan

Research Associate

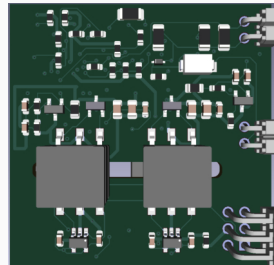
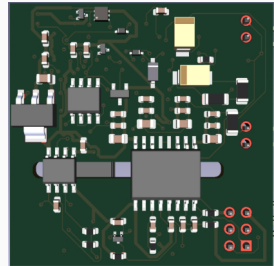
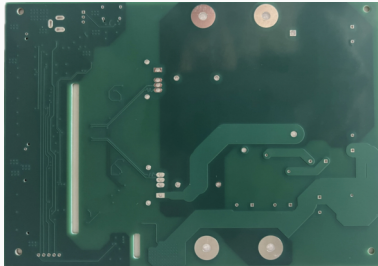
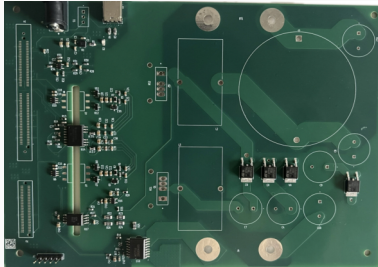
Advanced Power and Energy Center

Khalifa University, Abu Dhabi, UAE

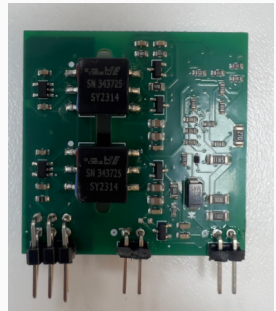
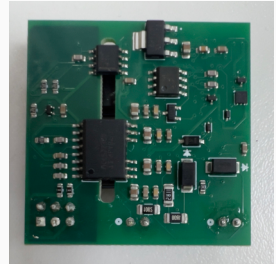
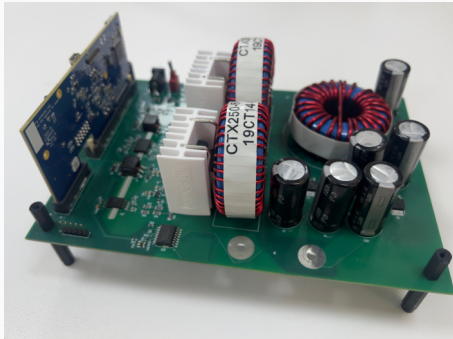
Hardware Prototyping



PCB Designing



PCB Designing



Model Predictive Flux Control

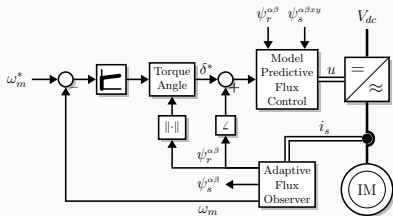
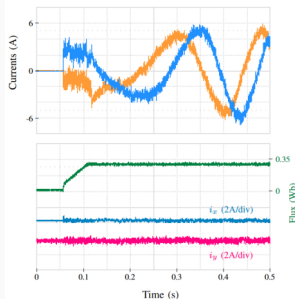
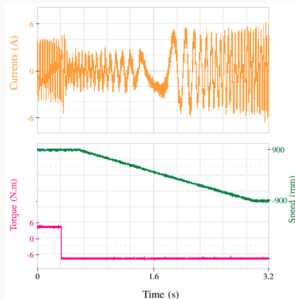


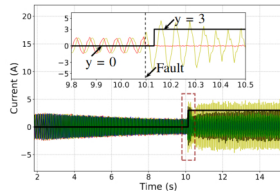
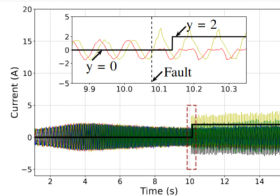
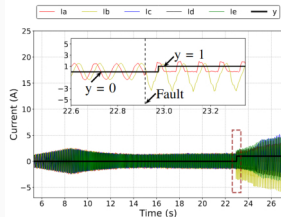
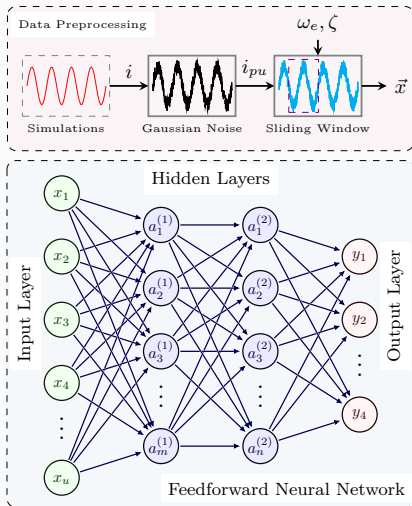
TABLE I
MOTOR PARAMETERS

Five-Phase Induction Machine					
P	1.4 kW	V_{dc}	300 V	$ \psi_s $	0.3 Wb
R_s	1.1 Ω	R_r	0.94 Ω	L_m	375 mH
L_{ls}	6 mH	L_{lr}	6 mH	N_r	1455 rpm
J	0.172 $\text{kg} \cdot \text{m}^2$	B	0.0006 $\text{N} \cdot \text{m} \cdot \text{s}$		

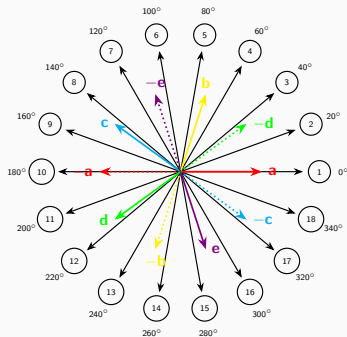
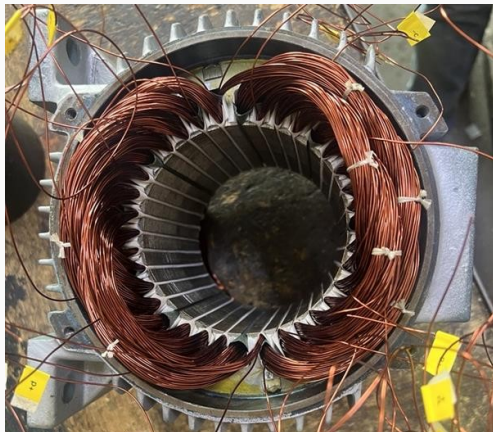


Neural-Network Based Fault Diagnosis

Training and Testing on Experimental Data



Refurbishing Three-Phase to Five-Phase IM



Phase (j)	● A ● B ● C ● D ● E																		
Slot (i)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
N_{ij}	U	55	11	44	22	33	33	22	44	11	55	11	44	22	33	33	22	44	11
	L	11	55	11	44	22	33	33	22	44	11	55	11	44	22	33	33	22	44
N_{ci}	66	66	55	66	55	66	55	66	55	66	66	55	66	55	66	55	66	55	66