Proposed MSc Dissertation Topics for MSc in EV (EE590, 9-credit)

Professot	Title	
Prof CHAU Kwok-tong	Energy Management for Electric Vehicles	k.t.chau@polyu.edu.hk
	Energy Encryption for Wireless Charging of Electric Vehicles	
	Magnetic Field Editing for Wireless Charging of Electric Drones	
	Education System for Electric Vehicles	
	Wireless Motors for Electric Vehicles	
Prof CHUNG Chin-shin Edward	Machine Learning Approach for Traffic State Prediction Incorporating Weather Forecast Data	edward.cs.chung@polyu.edu.hk
	Pricing Strategies for Electric Vehicle Charging Stations using Deep Reinforcement Learning	
	Large language models as the optimiser for the electric vehicle charging scheduling problem	
Dr FAN Wenbo	Trajectory optimization for the in-motion split of autonomous vehicle platoons in dense traffic	wenbo.fan@polyu.edu.hk
	Simulation and impact analysis of autonomous long platoons in mixed urban traffic	
	Data-driven approach for assessing bus line service reliability in transit-oriented Asia cities	
	Data-driven approach for assessing bus line service reliability in transit-oriented European cities	
	Optimal charging of modular electric vehicles with power sharing	
Prof GU Weihua	Spatio-Temporal Data Mining for On-Demand Electric Mobility	weihua.gu@polyu.edu.hk
	Energy Consumption Model Development for Electric Buses	
	Adaptive control for bus operation stability	
	Autonomous driving in Urban Traffic	
	Combined Planning of Electric Bus Charging and Maintenance	
Prof HUANG Dongmei	Battery monitoring by optical fiber sensing	meihk.huang@polyu.edu.hk
	Battery monitoring by optical imaging	
Dr JIANG Mingyuan	Design and analysis of the integrated flywheel-motor system	m.y.jiang@polyu.edu.hk
Dr LIU Junwei	Condition Monitoring of DC Capacitors in EV Chargers	junwei.jw.liu@polyu.edu.hk
	Degradation Monitoring of DC Capacitors in PV Inverters	
	Condition Monitoring of Power Semiconductor Devices in EV Chargers	
	Degradation Monitoring of Power Semiconductor Devices in PV Inverters	
	Design of Isolated Auxiliary Power Supply for Medium-Voltage Converters	
Dr LO Wai-chau Edward	Algorithm, analysis and simulation for load management of EV chargers with battery storage subsystem	w.c.lo@polyu.edu.hk
Prof LIU Wei Lucian	Design and Implementation of Fast Wireless Charging for Electric Vehicles	wei.liu@polyu.edu.hk
	Design and Control of High-Power Three-Level Converter for Wireless Power Transfer	
	Design and Implementation of Wireless Motor System	
	Development of Intelligent Energy Management Strategy for Fuel Cell Vehicles	
	Analysis and Control of Permanent Magnet Synchronous Motor System	
Prof NIU Shuang-xia	Development of a Rotary-Linear Machine for Robotic Applications	shuangxia.niu@polyu.edu.hk
	Design of a New Permanent Magnet Wind Power Generator	
	Design Optimization of Magnetic Gears	
	Nine-Switch-Converter and Its Application in Doubly Fed Wind Generation System	
Prof LI Shuangqi	Vehicle Speed Prediction Using Field Data and Artificial Intelligence Algorithms	shuangqi.li@polyu.edu.hk
	Battery Remaining Useful Life Prediction Using Deep Learning Techniques	
Dr TIAN Jinpeng	Electrochemical impedance modelling and state estimation for lithium-ion batteries.	jinpeng.tian@polyu.edu.hk
	Efficient state of health estimation for batteries for battery energy storage systems	
	Machine learning based efficient health screening for retired electric vehicle batteries	
	Fault detection and diagnosis for battery energy systems using field data	
	Battery equivalent circuit modelling and online state of charge estimation	
Dr WANG Hui	Wireless Power Transfer for Switched Reluctance Motor	hui93.wang@polyu.edu.hk
	Wireless Resolver for Wireless DC motor	
	Frequency-adjustable wireless power transfer	
Prof ZHANG Yi	AI-Assisted Reliability-Oriented Design for Electric Vehicle Traction Converters	yi-ee.zhang@polyu.edu.hk
	PSpice simulation study of pulse current source for SiC MOSFETs Transient Measurement	
	Temperature Measurement of GaN Power Devices Using Temperature-Sensitive Electrical Parameters	
	Online health monitoring of power semiconductor devices	
	Design and Implementation of a Hardware Testbed for EV Power Electronics Traction Converter (Students are required to have the necessary practical skills in power electronics hardware development)	