

LOOSELY COUPLED HARDWARE IN THE LOOP TESTING FOR ELECTRIC VEHICLE POWERTRAINS

CRANFIELD UNIVERSITY

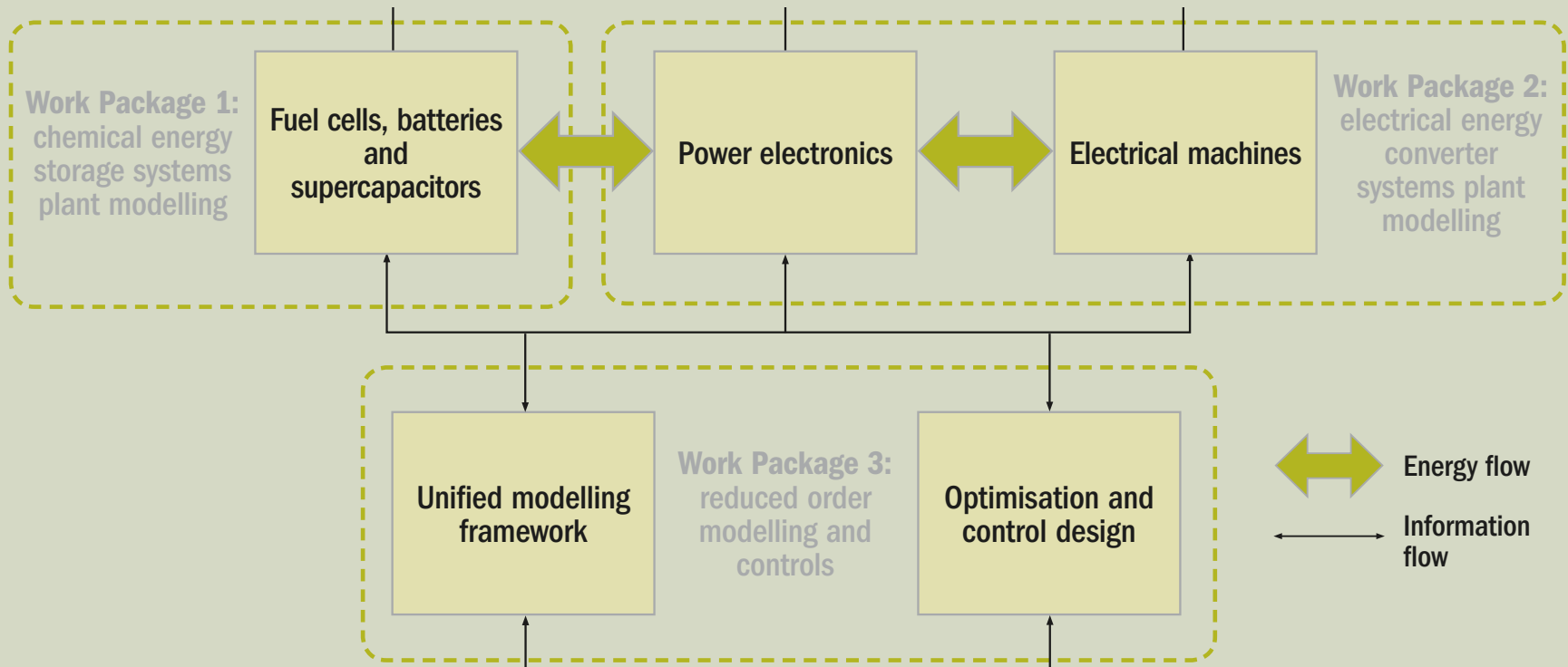
Stefano Longo

Lilantha
Samaranayake

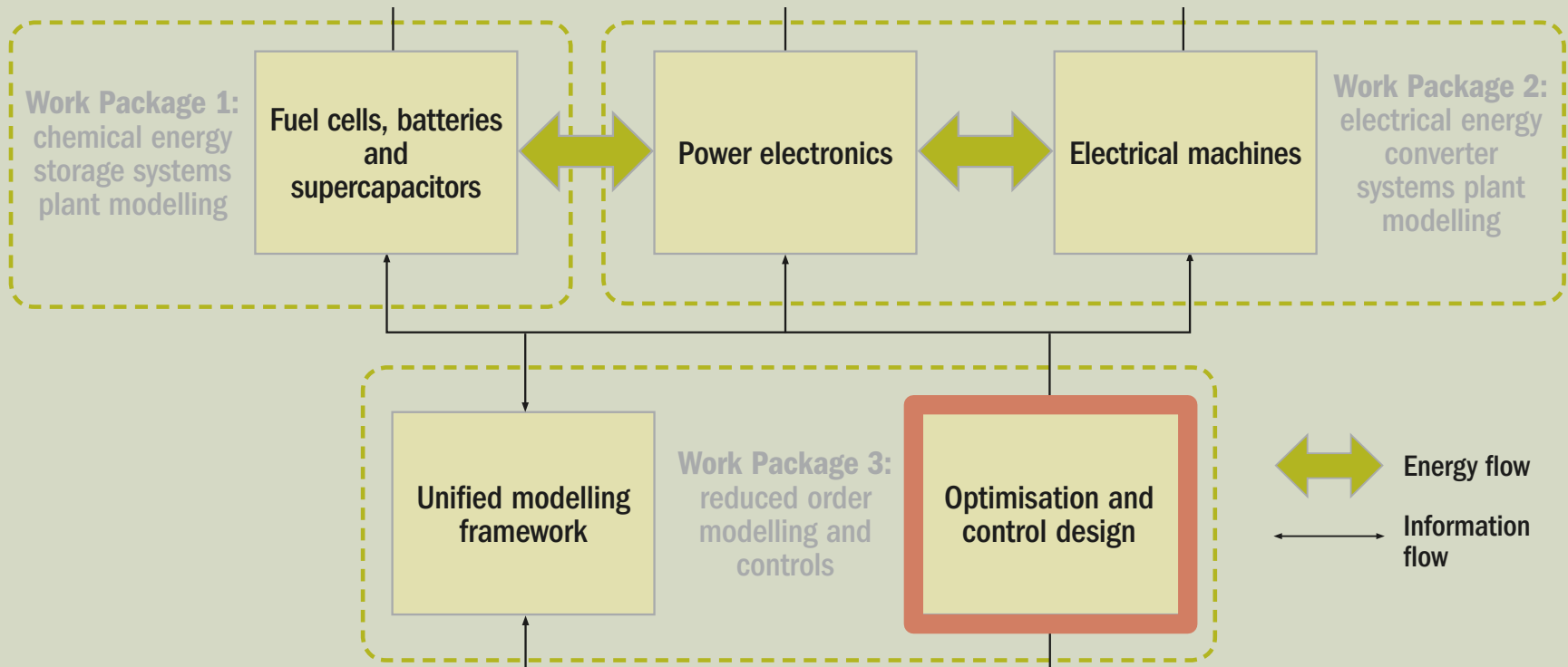
Daniel Auger



BIGGER PICTURE



BIGGER PICTURE



OBJECTIVES



**Minimise components
degradation via
control design**

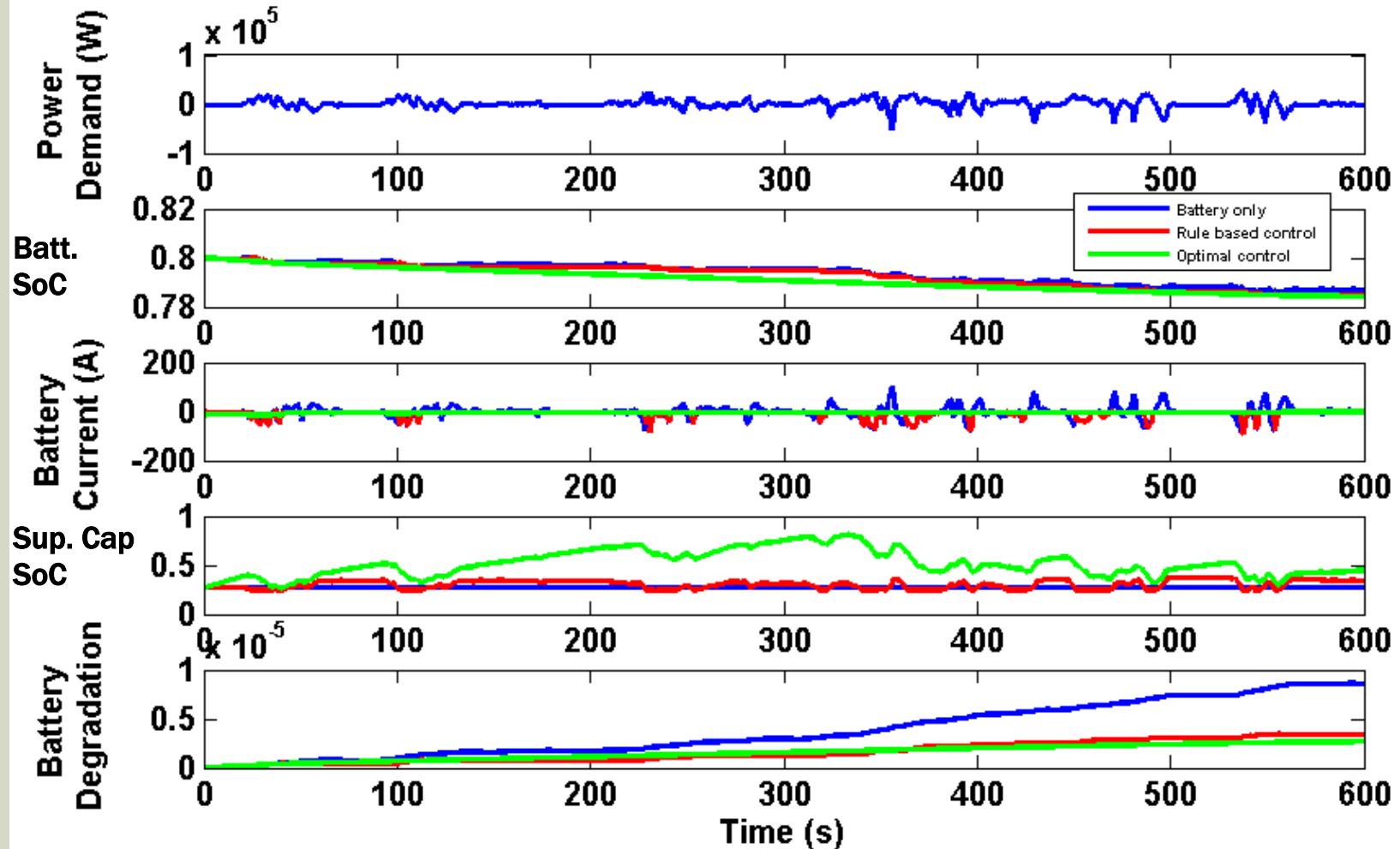
**Hardware-in-the-loop
testing**

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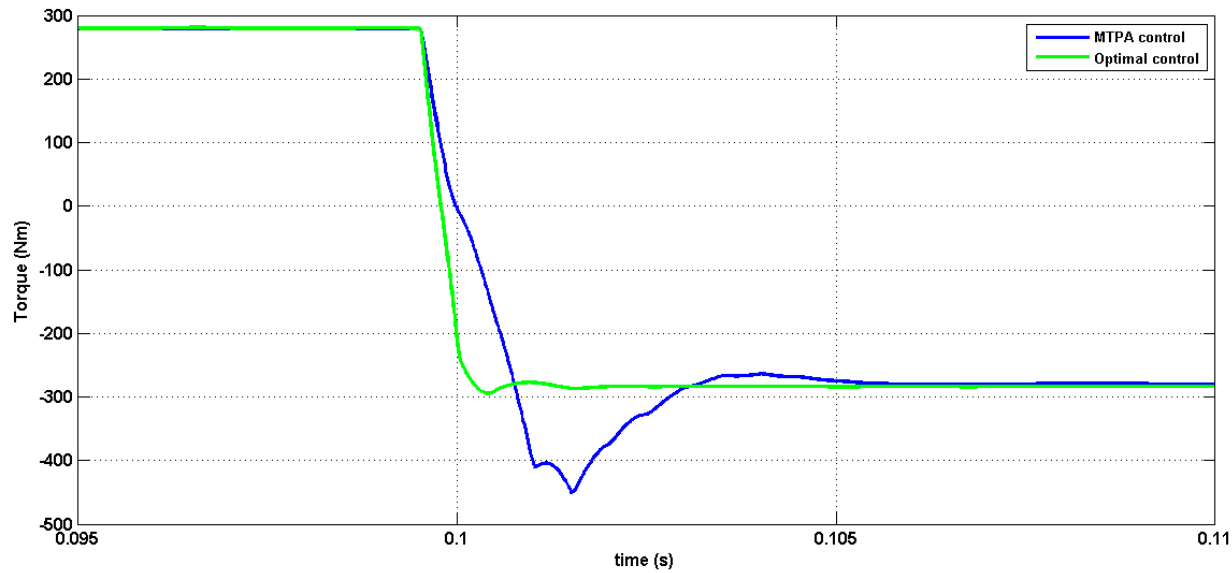
The diagram consists of two dark brown rounded rectangular boxes with white text. The first box on the left contains the text 'Minimise components degradation via control design'. A large, light grey arrow points from this box to a second box on the right. The second box contains the text 'Hardware-in-the-loop testing'. The background is a light green gradient.

**Hardware-in-the-loop
testing**

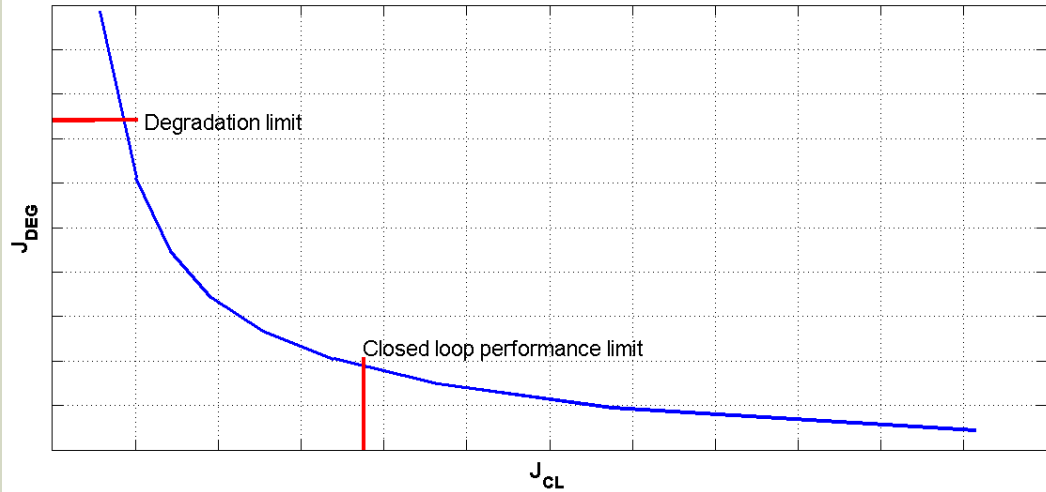
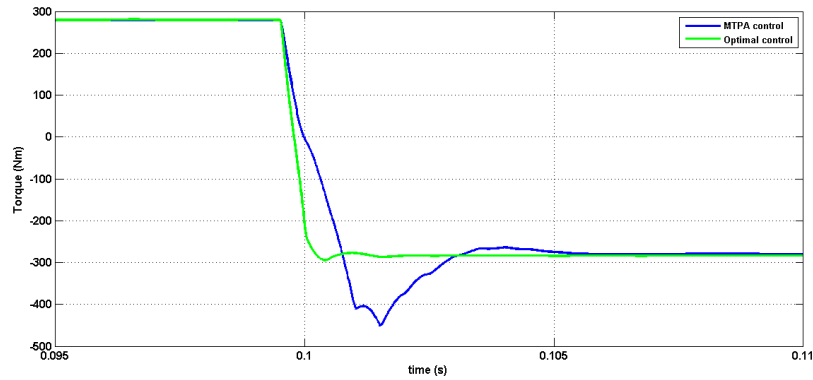
MINIMISE COMPONENTS DEGRADATION VIA CONTROL DESIGN



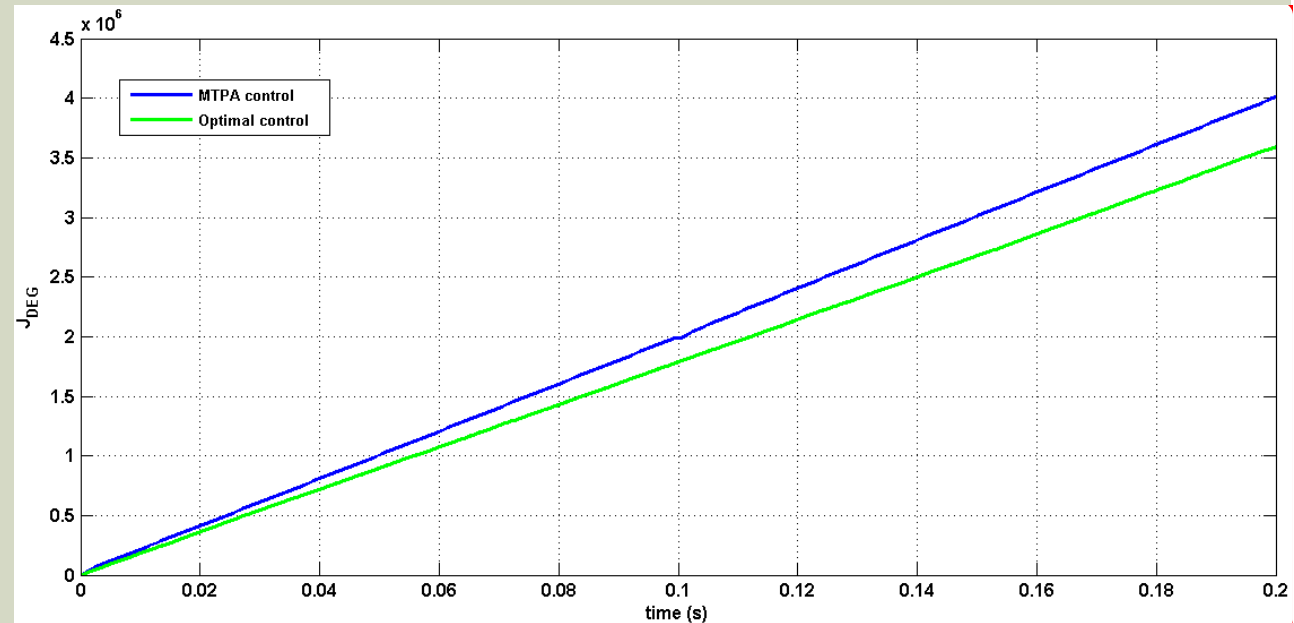
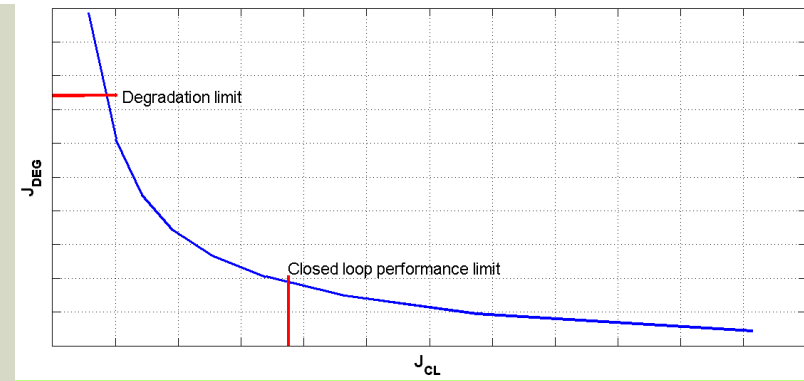
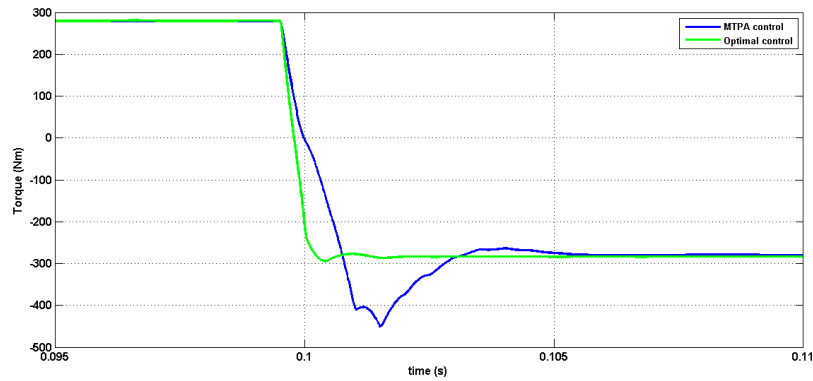
MINIMISE COMPONENTS DEGRADATION VIA CONTROL DESIGN



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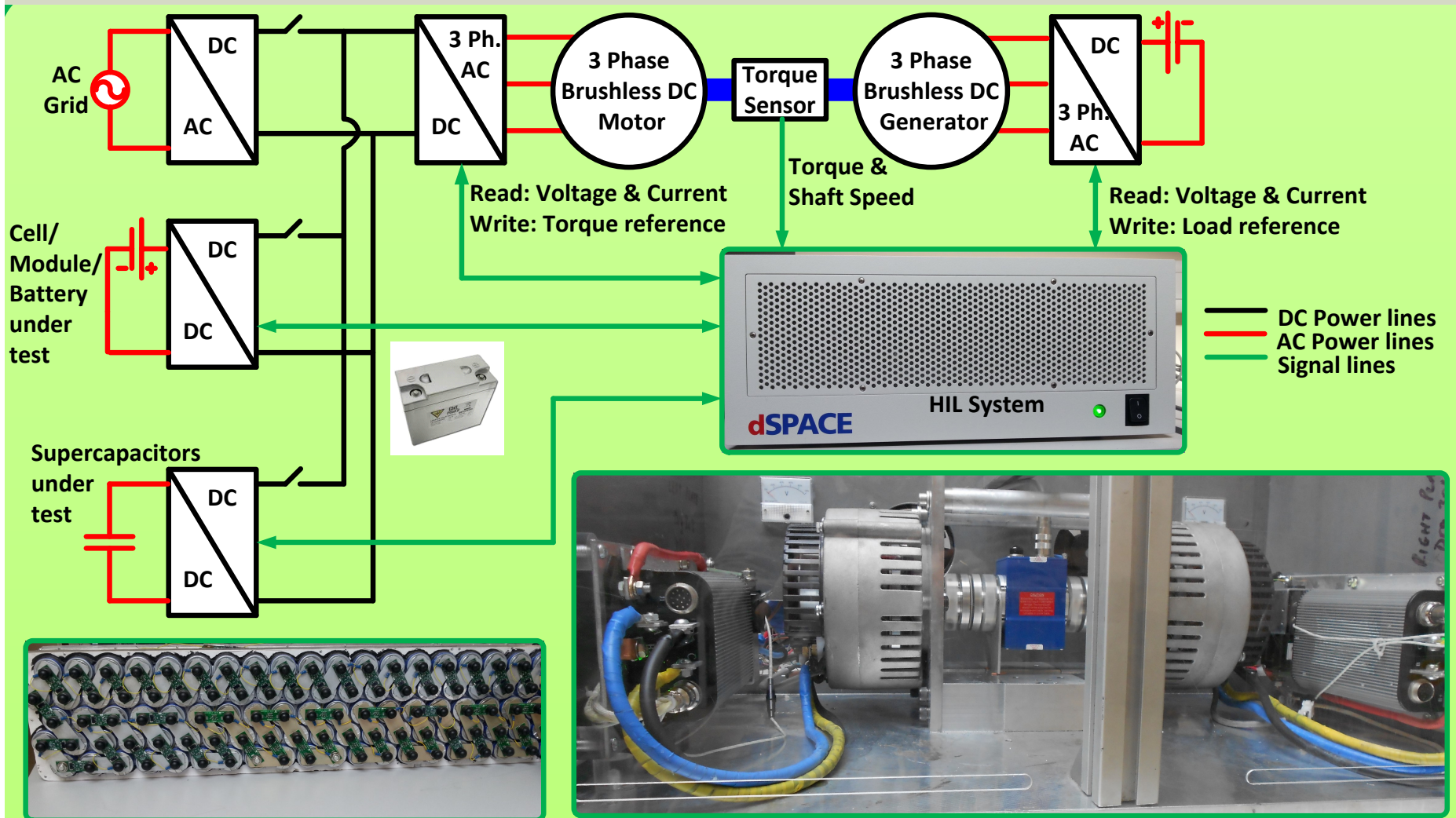
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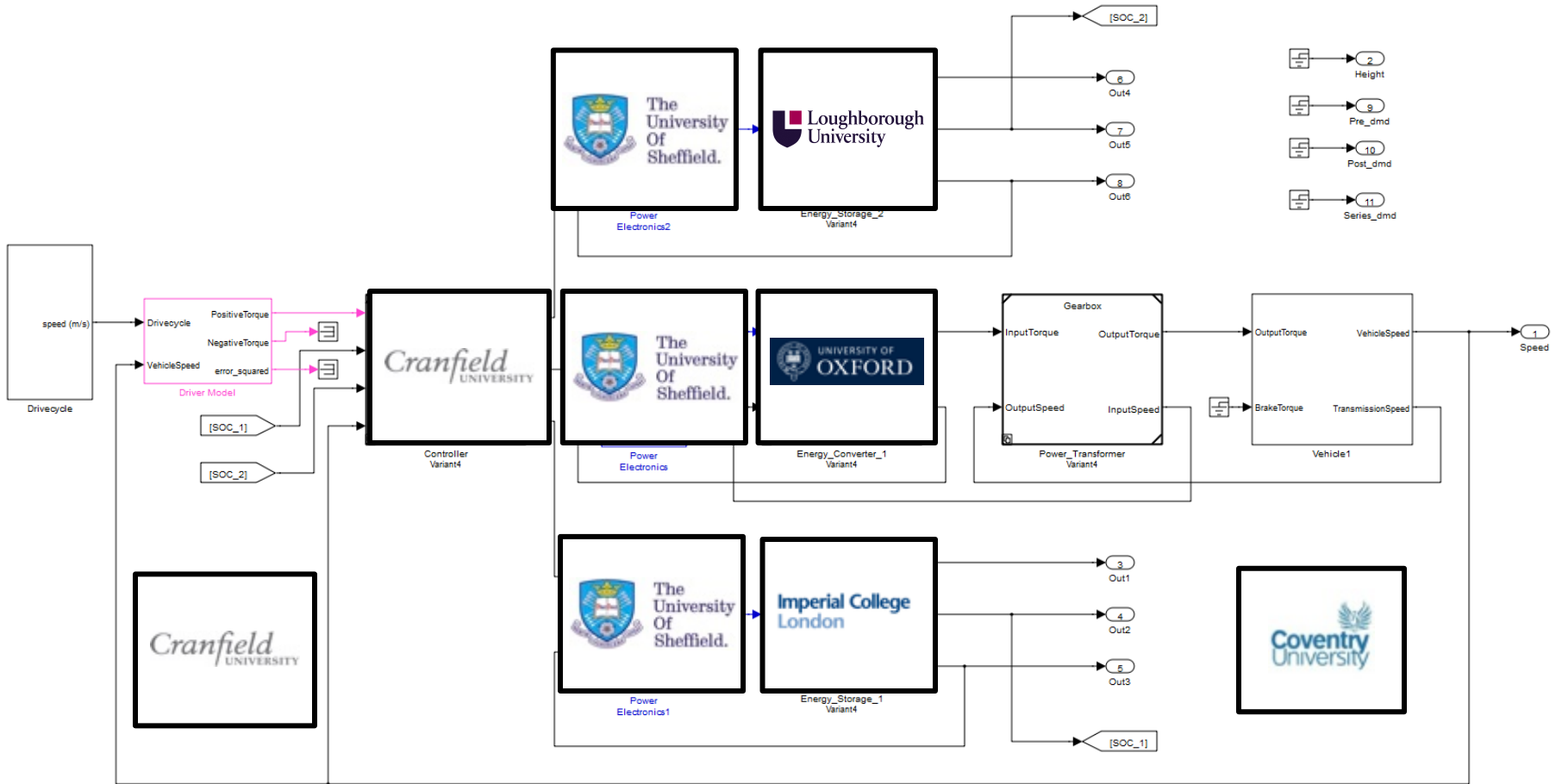
**Minimise components
degradation via
control design**

**Hardware-in-the-loop
testing**

HIL TEST RIG



HIL TEST RIG



IN SUMMARY

Development of control algorithms to mitigate components degradation

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Optimal power flow
control impacts on
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Optimal power flow control impacts on degradation

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A HIL rig to evaluate, test and optimise electric powertrains

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HIL components under test do not need to match in terms of power

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THANK YOU

