Sustainability Conference for SC4RC Responsible Research Computing

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CERN

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Oak Ridge National Labratory

A comprehensive data analysis of three IBM POWER9 Cooling Systems in the ExaDigit framework: *Summit, Lassen,* and *Marconi100*

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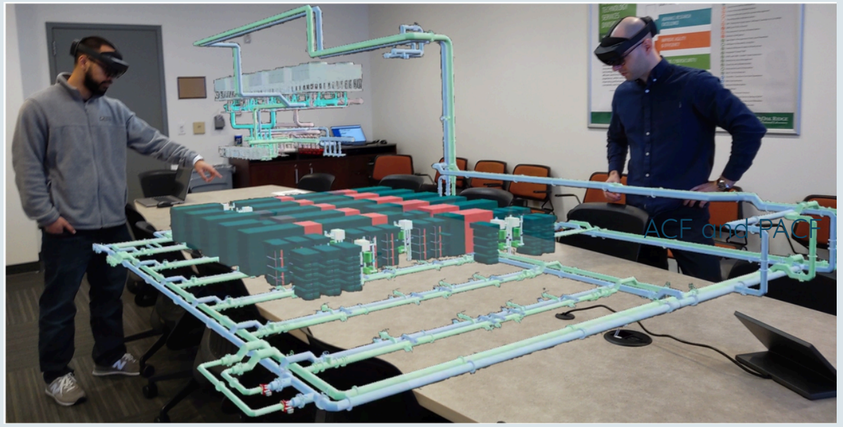
Post #63

EXADIGIT



Models	Summit (ORNL)	Marconi100 (CINECA)	Lassen (LLNL)
Comp. Cap	200 PF	32 PF	23 PF
CDUs	257	49	44

Questions

Direct-Effect → which inputs matter?

Multivariate → confounding & memory?

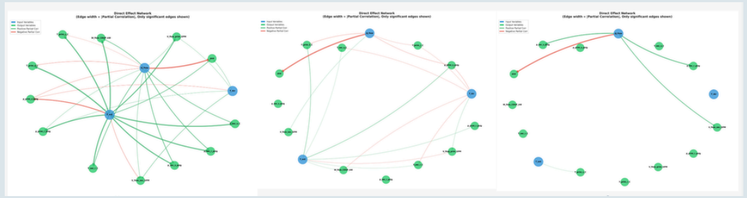
Rate-of-Change → levels or derivatives?

Non-Linearity → architecture depth?

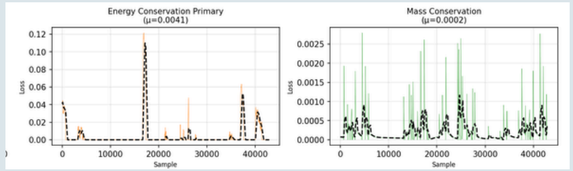
Spatial → per-CDU or graph?

Physics → which constraints to enforce?

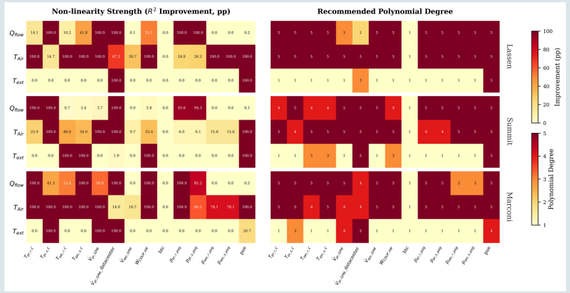
Direct Effect Network



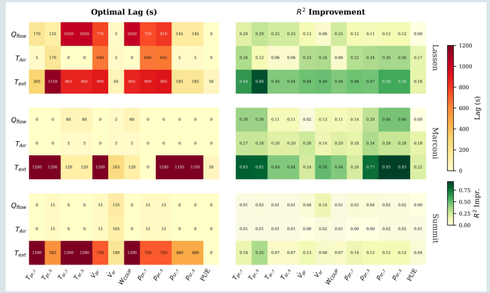
Physics Consistency



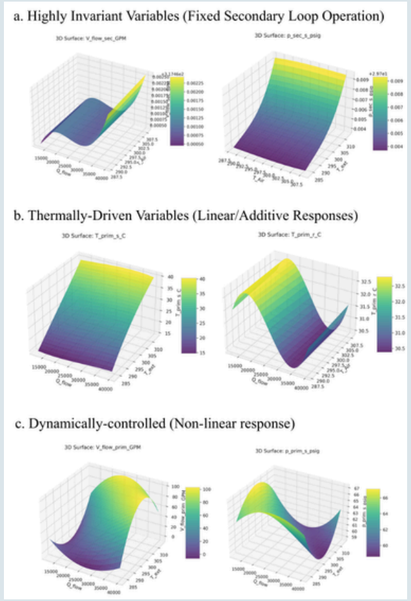
Lagged Effects



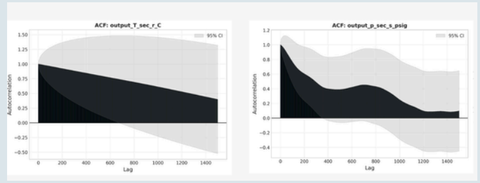
Autocorrelation

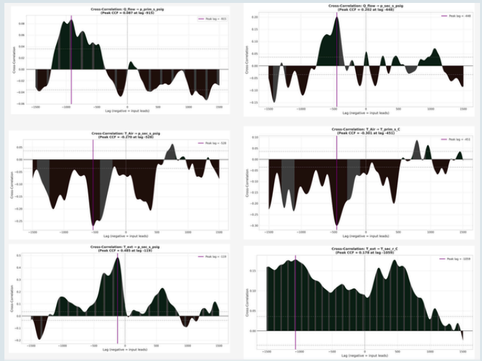


Response Curve

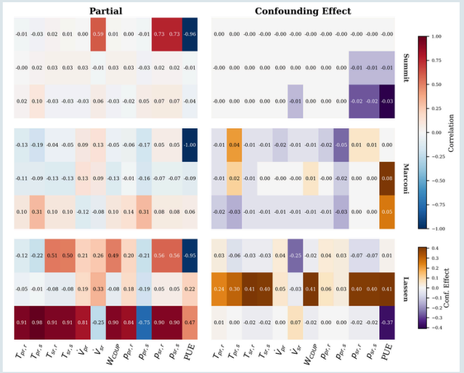


ACF and CCF Analysis





Partial Correlation



Spatial Interaction