Complex Data- Breakout - Summary
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Complexity

Every complex system has multiple views contributing to the discovery (Eg: a small piece of land being studied from satellite, sensors, field observations;), Some redundancy but also some new information from views

Finding relationships between measurable phenomena helps discover a non measured phenomena;if you discover such phenomena can you measure it to validate it (hypothesis discovery and validating it); co-dependence, correlations,comorbidities, causality

How do you study it - Multi modal, multi domain, multiview analysis

Challenges

Data can be Multi resolution- but at a much broader scale? Seconds vs years, vs peco seconds and micro seconds;

Lot of independent information in each of the new views -- a shared latent information, creating a unified view?

There could some overlap, some mutual dependence but also lot of independent and novel view of the same thing

One part is understanding the data and process but then what mining methods do you use

Can methods be agnostic to underlying mechanisms?--- can you discover relationships between observables without putting it in.

In some domains you can turn the knobs to study it, but others you may not , how do you measure the sensitivity to capture the process

Transfer learning- multi fidelity data, uncertain, certain, medium fidelity

Call to action: Inviting all Institutes (Your "Complex" data problems)