Real-time Data Analytics for Energy Cyber-Physical Systems (#1854077)

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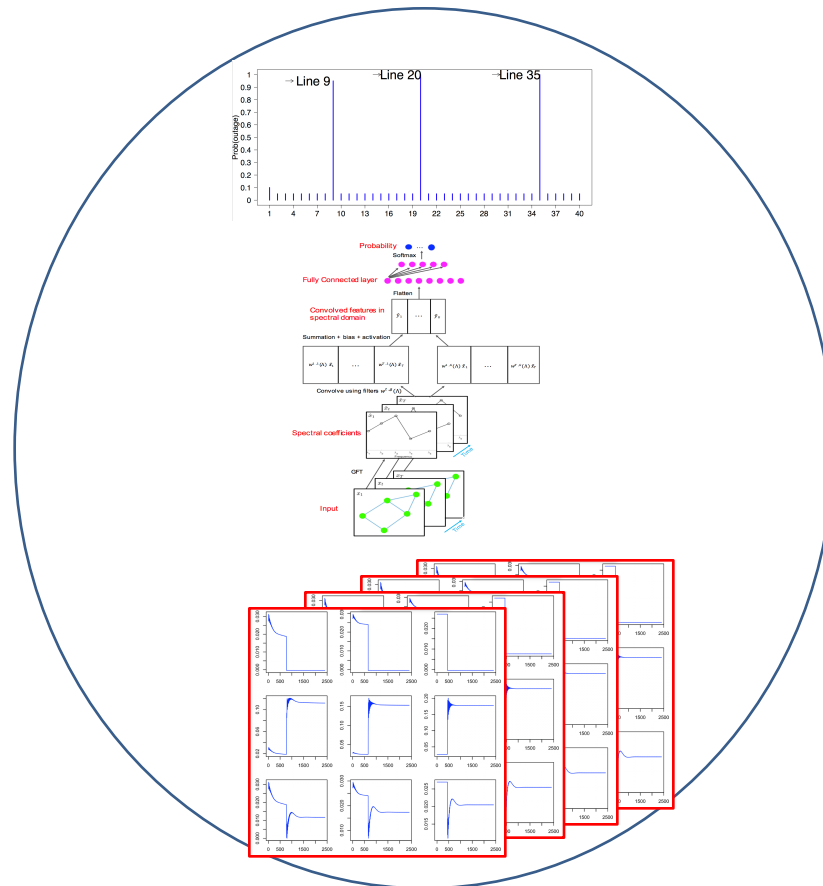### Mihai Anitescu, University of Chicago

Challenge:

- Dynamic loads
- Noisy data
- Missing data
- Unknown power system admittance matrix

Solution:

- Spatiotemporal patterns
- Graph convolutional neural networks: spatial filter and spectral filter

Scientific Impact:

- Real time faulty detection and localization
- Improve system understanding and situational awareness
- Automatic monitoring and control of grid

Broader Impact:

- Provide reliable electrical energy
- Improve the resilience of power systems
- Avoid large scale power outage and revenue loss

Line outage identification as a signal classification problem

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