Developing a Robust Electricity Mix

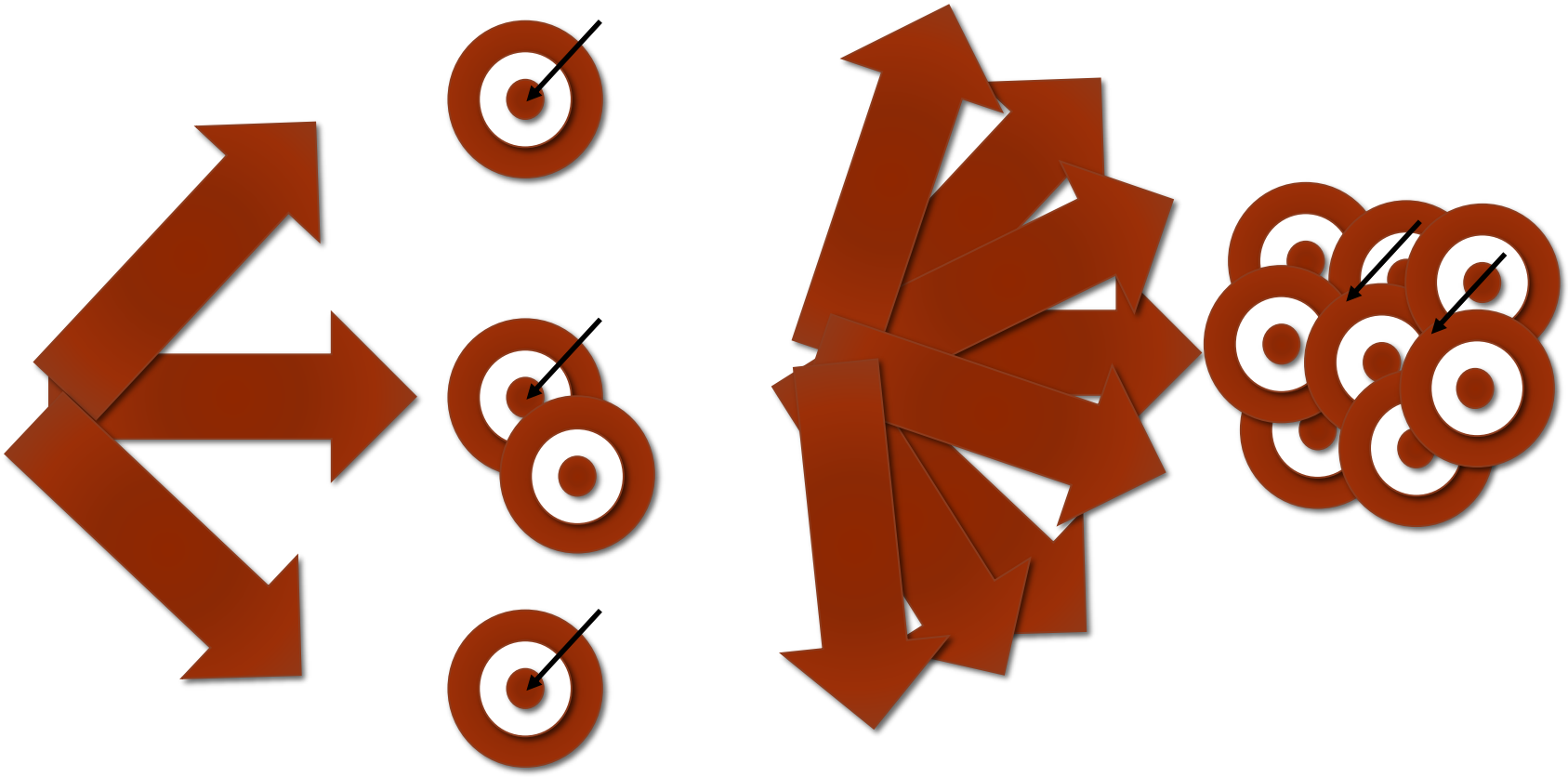
LUDOVIC GAUDARD

USAEE/IAEE North American Conference
Washington DC, September 26, 2018

The relevance of being robust in an uncertain world

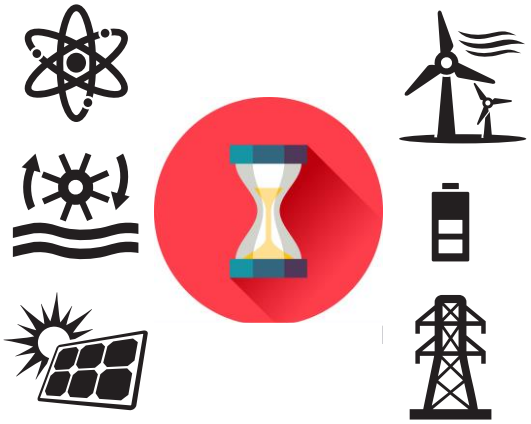
Optimal

Robust

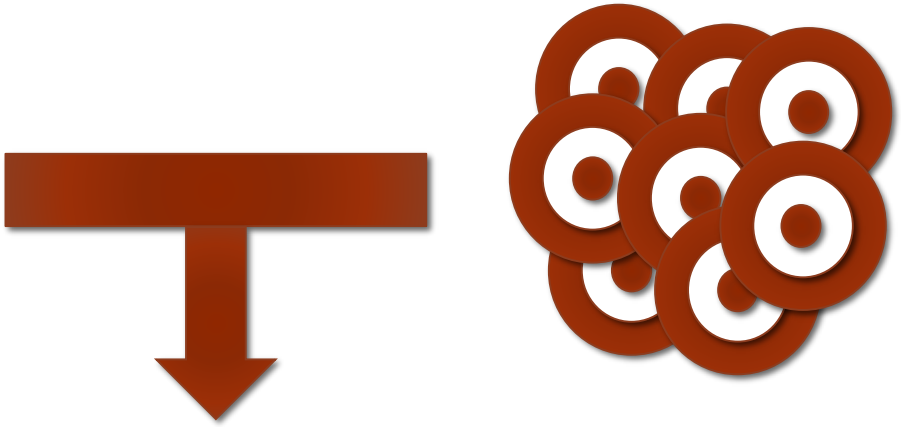


A model with three modules

Energy System Modeling



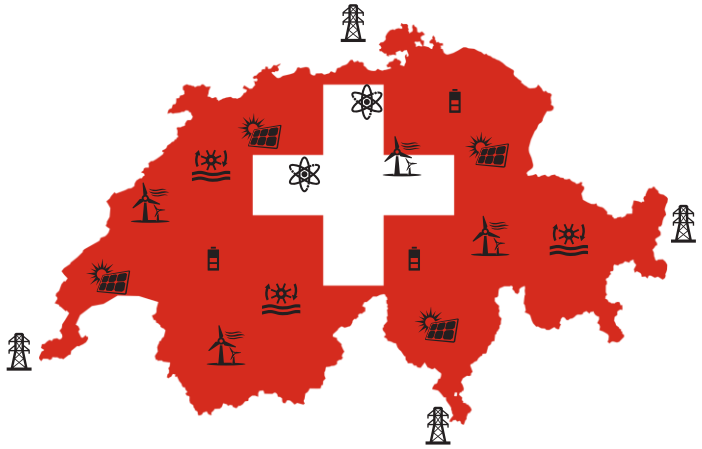
Exploratory scenarios



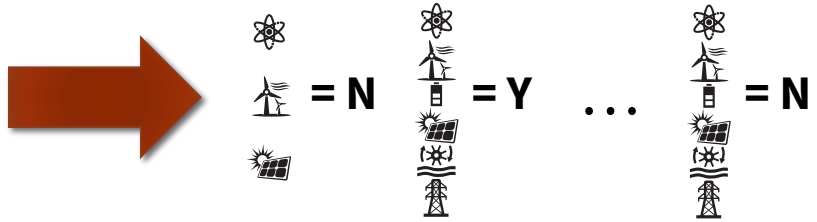
Dynamic Management

Credits: Shutterstock and Gatti (2012)

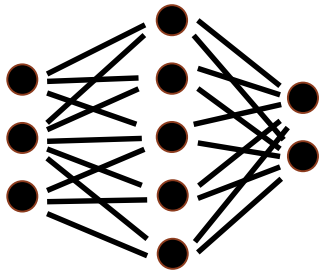
How to convert your model to machine learning ?



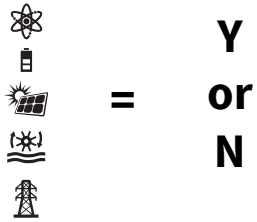
Energy System Modeling



Dataset



Train your computer

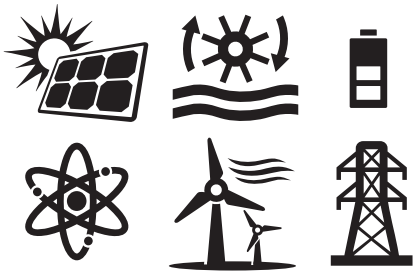


Stanford University

Credits: Shutterstock

The benefit of machine learning

Energy System Modeling



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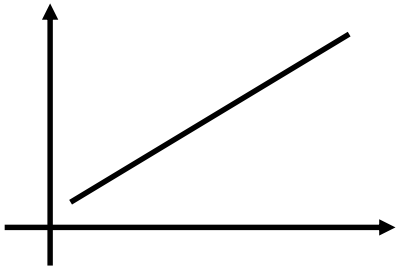
~10 min

Regression



10 %

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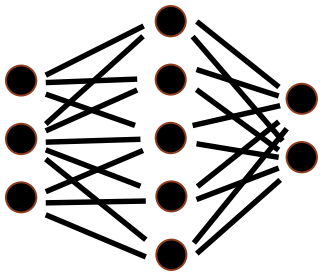
Neuronal Network



~ 1 %

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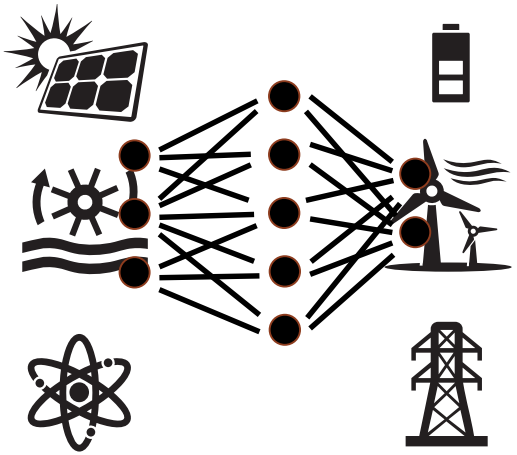
Stanford University

Credits: Shutterstock

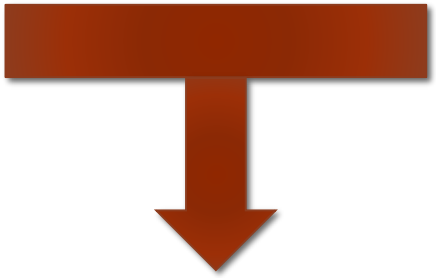
The new model

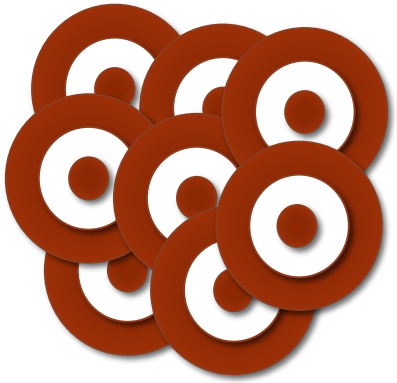
Energy System Modeling

Machine Learning

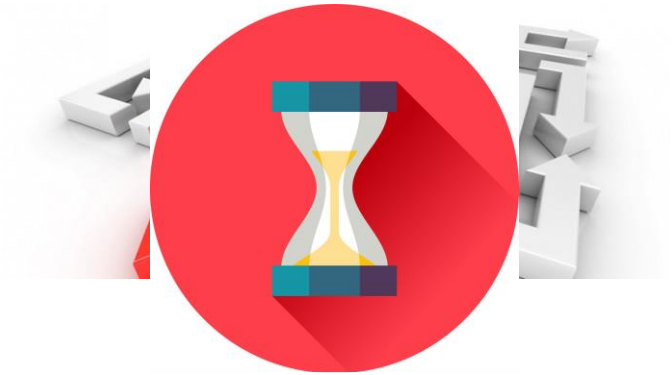


Exploratory scenarios





Dynamic Management



Credits: Shutterstock and Gatti (2012)

Conclusion

*Energy system modeling can benefit from **machine learning** **but** we need to **adapt** our perspective*