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## Scientific inference with imperfect theories: examples with machine learning and neurosciences

*mercredi 27 avril 2022 16:00 (30 minutes)*

Science has progressed by reasoning on what models could not predict because they were missing important ingredients. And yet without correct models, standard statistical methods for scientific evidence are not sound. I will argue that machine-learning methodology provides solutions to ground reasoning about empirically evidence more on models' predictions, and less on their ingredients. I will draw examples from the history of physics and ongoing work in neuroscience, highlighting patterns in the back and forth between data and theory.

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**Classification de Session:** AI and physics conference