



Institute for Data Sciences and Engineering
COLUMBIA UNIVERSITY

SEMINAR EVENT

DATE: TUES, MAR 4

TIME: 10:00 A.M.

LOCATION: 750 COSTA
ENGINEERING
COMMONS –
INTERSCHOOL LAB



SPEAKER: **Ansaf Salleb-Aouissi**

Associate Research Scientist, Columbia University's Center for Computational Learning Systems

TITLE: **Machine Learning Paves the Way for Prediction of Preterm Birth**

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Abstract:

Huge amounts of data are being collected everywhere—when we browse the web, go to the doctor's office, visit the supermarket, or watch a movie, we are providing information that fills in records on a database. Advances in fields like machine learning have shown promise with respect to digging through the data to make it more useful.

In the first part of my talk, I will present ongoing research by my group in medical informatics with emphasis on the application of machine learning to the prediction of preterm birth. I will present our analysis of a dataset collected by the NIH-NICHD Maternal Fetal Medicine Units (MFMU) Network, a high-quality dataset for over 3,000 singleton pregnancies having detailed study visits and biospecimen collection at 24, 26, 28 and 30 weeks gestation. I will present our initial results that demonstrate the superiority of machine learning methods and advanced model selection techniques to predict preterm birth as compared to the results reported in the literature. I will also discuss our ongoing efforts to tackle the exciting challenges this application poses from a machine learning perspective, including multiple label learning, temporal prediction, and learning using privileged information.

In the second part, I will describe our efforts to harness Electronic Health Records to prepare data for machine learning. I will show our preliminary work on prediction of preterm birth using a 5-year snapshot of data for mothers and babies from the New York Presbyterian Hospital EHR systems. I will conclude my talk with my education and research objectives and how they buttress each other.

Bio:

Ansaf Salleb-Aouissi joined Columbia University's Center for Computational Learning Systems as an Associate Research Scientist in 2006 after a Postdoctoral Fellowship at INRIA (France). Her research interests lie in Machine Learning. She has worked on large-scale projects including the power grid. Her current research includes pattern discovery, crowdsourcing and medical informatics. Ansaf has published several peer-reviewed papers in high quality journals, conferences and books including TPAMI, ECML, PKDD, COLT, IJCAI, ECAI and AISTAT. Ansaf received an Engineer degree in Computer Science from the University of Science and Technology Houari Boumediene, Algeria, an M.S. and Ph.D. degrees from University of Orleans (France).

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