



## Using Artificial Intelligence (AI) and Innovative Strategies to Study Adverse Pregnancy Outcomes *All times EDT*

### **Sept. 9 - Primer on Artificial Intelligence - Moderator Lina Bergman**

- 11:00 - 11:10
  - Welcome and instruction - Les Myatt and Jim Roberts
- 11:10 - 11:40
  - Overview: What is AI and its history? - Peter Szolovits (MIT)
- 11:40 - 12:10
  - Machine Learning and Clinical Diagnosis - Dominik Heider (U of Marburg)
- 12:10 - 12:25
  - Deep Learning in the Antepartum, an overview of AI in perinatal medicine: A fresh look by an early career investigator - Gabriel Jones (Oxford)
- 12:25 - 12:50
  - AI systems to assist the interpretation of intrapartum electronic fetal monitoring - Antoniya Georgieva (Oxford)
- 12:50 - 13:05 Break
- 13:05 - 13:35
  - The power of AI to decipher complex medical syndromes - Lana Garmire (U Michigan)
- 13:35 - 13:55
  - Requirements: GIGO - Chris Redman (Oxford)
- 13:55 - 14:15
  - Medical Informatics - Peter Szolovits
- 14:15 - 15:30
  - Discussion - Peter Szolovits and Jim Roberts (U of Pittsburgh) chairs

### **Sept. 10 - Innovative Strategies - Moderator Les Myatt**

- 11:00 - 11:45
  - Introduction to Chair Steve Lye (U Toronto)
  - Panel: Kent Thornburg (Oregon Health Sciences University), Jim Roberts, Les Myatt (Oregon Health Sciences University), Carlos Escudero (U of Bio Bio, Chile), Eleni Tsigas (Preeclampsia Foundation), Gordon Smith (Cambridge), Lucilla Poston (King's College London), Graham Burton (Cambridge), Chris Redman, Dominik Heider and Mark Santillan (U Iowa)
  - Longitudinal (trajectory)
  - Very early (prepregnancy) approaches
  - Resilience (why women do not get sick)
  - Post pregnancy studies
  - Short-term and long-term
  - Use of Electronic Medical Records
  - Studies appropriate to low resource settings
  - New analyses of existing complex data
  - Microscopic sections

- FHR
- Doppler
- Physiological and animal model studies
- Rethinking preeclampsia diagnoses: molecular/-omic/physiologic phenotyping

## Examples -----

- 11:45 - 12:15
  - Transdermal optical imaging and its application in maternal health monitoring during pregnancy – Kang Lee (University of Toronto)
- 12:15 - 12:45
  - Rapid assessment of placentas - using artificial intelligence to translate digital images into clinical and research utility in low resource settings - Alison Gernand and James Wang (Penn State University)
- 12:45 - 13:00 Break
- 13:00 - 13:30
  - Signal processing and pattern recognition: Insights from the development of circulating microparticle proteins in preeclampsia with severe features - Tom McElrath (Harvard)
- 13:30 - 14:00
  - Using large amounts of longitudinal data - Anish Sebastian (Baby Scripts USA)
- 14:00 - 14:30
  - Using wearable sensors for personal environmental exposure, behavior and health assessment in epidemiological studies of pregnancy outcomes - Rima Habre (U of Southern California)
- 14:30 -14:45
  - An Efficient Machine Learning Strategy to Improve the Partition and Prediction of Preeclampsia in Asymptomatic Women - Jianhong Zhang (U of Toronto)
- 14:45 - 15:00
  - An App to modify prepregnancy and early pregnancy behavior - Regine Steegers (Erasmus MC Netherlands)
- 15:00 - 16:00
  - **Discussion - Moderator** - Jenny Myers (U of Manchester)
  - The group