



# 6th Signal Processing and Monitoring (SPaM) in Labour International Workshop 2026

📍 Oxford, UK | 📅 June 25–27, 2026



Advancing science and technology to improve  
intrapartum care for mothers and babies worldwide



## THURSDAY (25<sup>TH</sup> JUNE)

### 8:15 REGISTRATION (COFFEE + PASTRIES)



### 8:50 – 9:00 WELCOME FROM THE ORGANISERS

### 9:00 – 9:20 WHERE ARE WE WITH INTRAPARTUM FETAL MONITORING?

Austin Ugwumadu, St George's Hospital, UK

### 9:20 – 10:30 THE INTRAPARTUM CTG AND ITS RELATION TO BIRTH OUTCOMES (PART 1)

*Chair: Malin Holzmann*

#### 9:20-9:40 Masahiro Nakao, Mie University Graduate School of Medicine (Japan)

Timing and underlying cause of perinatal brain injury leading to severe cerebral palsy: data from a nationwide cohort

#### 9:40-10:00 Mikko Tarvonen, University of Helsinki (Finland)

Chorioamnionitis and the fetal heart rate responses in the fetus during term labor

#### 10:00-10:20 Tomoaki Ikeda, Mie University Graduate School of Medicine (Japan)

Circadian Modulation of Fetal Heart Rate Variability: Translational Evidence from Humans, Fetal Sheep, and Zebrafish

#### 10:20-10:30 Whole workshop discussion

### 10:30 – 11:00 COFFEE BREAK

### 11:00 – 12:30 THE INTRAPARTUM CTG AND ITS RELATION TO BIRTH OUTCOMES (PART 2)

*Chair: Martin Frasch*

#### 11:00-11:20 Mariana Tome & Antoniya Georgieva, Oxford Labour Monitoring, University of Oxford (UK)

Fit4Labour for simple triage at labour onset – development and validation with >147,000 births from 6 hospitals in 2 countries.

#### 11:20-11:40 Alice Collier, University of Oxford (UK)

Antenatal mechanics informed machine-learning (MxL) model for predicting mechanical vaginal labour injuries from antenatal measurements.

#### 11:40-11:55 Martin Daumer, Technical University of Munich & TRIUM (Germany)

Algorithms and software to predict fetal distress and short-term variation

#### 11:55-12:10 Sophia Andres, University Hospital Ulm (Germany)

Neonatal outcomes improvement after implementation of physiological CTG interpretation

#### 12:10-12:30 Barry Schifrin (US)

Not all hallucinations are generated by AI

**12:30 – 14:00 LUNCH**

**14:00 – 15:50 TRANSABDOMINAL, WEARABLE AND HOME DEVICES & THEIR DATA**

*Chair: Martin Daumer*

**14:00-14:20 Nicolò Pini, Isabelle Mueller, and Bill Fifer (US)**

Novel technological solutions for assessing antepartum maternal and fetal wellbeing using wearable technologies

**14:20-14:40 Julian Penders, Bloomlife (US)**

Remote maternal and prenatal care

**14:40-15:00 Shantanu Pathak, CareMother/Doto Health (India)**

Nurtura: dyadic monitoring and intelligent surveillance system in intrapartum and post-partum journey

**15:00-15:20 Emerson Keenan, University of Melbourne and Kali Healthcare (Australia)**

Real-time CTG classification using a low-power wearable device

**15:20-15:35 Antoniya Georgieva, Oxford Labour Monitoring team, University of Oxford (UK)**

UPatch: a novel wearable ultrasound patch for continuous and autonomous monitoring of fetal and cord vessels (includes heart rate)

**15:35-15:45 Meryam Segul, Oslo University (Norway)**

Updates from Oslo: challenges and plans around home monitoring

**15:45-15:50 Whole workshop discussion**

**15:50 – 16:20 COFFEE BREAK**

**16:20 – 17:30 A SESSION OPEN TO THE [WOLFSON'S CROSS-DISCIPLINARY MACHINE LEARNING \(XML\) RESEARCH CLUSTER](#) (note Koepernik's talk had to be cancelled)**

*Chair: Csaba Botos ([XML Cluster](#))*

**16:20-16:40 Sheng Wong, University of Oxford (UK)**

PRISM-CTG: A Foundation model for cardiotocography analysis with multi-view SSL

**16:40-17:00 Maria Signorini, University Milano (Italy)**

Analysis of Fetal Heart Rate antepartum: multiparametric methods and artificial intelligence contribution

**17:00-17:20 Martin Frasch (US)**

Pregnancy health monitoring: where are we headed? Experiences using the recently released 10M ECG foundation model and more

**17:20-17:30 Whole workshop discussion (note Koepernik's talk had to be cancelled)**

**17:45 – 19:30 TREASURE HUNT IN OXFORD, START FROM THE WORKSHOP VENUE**

**FROM 19:00/19:30 – INFORMAL DINNER/DRINKS, JUST TURN UP WHEN YOU ARE READY WITH THE HUNT: [RED LION'S WEBPAGE](#)**



## FRIDAY (26<sup>TH</sup> JUNE)

### 8:45 REGISTRATION (COFFEE + PASTRIES)

#### 9:20 – 10:40 CAN TECHNOLOGY ENHANCE WOMEN'S EXPERIENCES IN LABOUR? ETHICAL, EQUITABLE AND RESPONSIBLE USE OF NEW TECHNOLOGIES IN MATERNITY CARE

*Chair: Mariana Tome*

**9:20-9:40 Sahana Narayan, Oxford Labour Monitoring, University of Oxford (UK)**

What the machine cannot hear: maternal testimony, clinical technology, and the limits of intrapartum risk recognition

**9:40-10:00 Deborah Fox, University of Technology Sydney (Australia)**

Technological mediation and the re-ordering of moral attention in labour and birth

**10:00-10:20 Rachel Plachcinski, Patient, Public and Parents representative (UK)**

Tool vs system - questions and concerns from parents

**10:20-10:40 Whole workshop discussion**

### 10:40 – 11:10 COFFEE BREAK

#### 11:10 – 11:30 THE DIGITAL LANDSCAPE OF MATERNITY CARE - FIT FOR THE FUTURE?

Hsu Chong, Birmingham Women's Hospital (UK)

#### 11:30 – 12:30 CHRIS REDMAN MEMORIAL LECTURE, Sir Sabaratnam Arulkumaran (UK)

### 12:30 – 14:00 LUNCH

#### 14:00 – 15:10 ELECTROPHYSIOLOGICAL SIGNAL PROCESSING AND MODELLING, UPDATES FROM EINDHOVEN UNIVERSITY (NL)

*Chair: Danilo Pani*

#### Flash talks (7min each):

**Alessandra Galli**

Advancing Non-Invasive Fetal Monitoring through Electrophysiological Signals

**Swedha Sankaranarayanan**

Synthesis of Multi-Channel Intrapartum Fetal ECG Signals with Deep Generative Modelling

**Irene Lensen**

Automatic Extraction of Cardiac Time Intervals from Fetal ECG Using a Personalized Dictionary Approach

**Busra Ünlü**

The Impact of Missing FHR Values on the Accuracy of Heart Rate Variability Features

**Giulia Acquaviva**

Toward Non-Invasive Fetal Brain Monitoring through Multimodal Integration of Electrophysiological Measures

**Milad Mazaheri**

A Comparative Study of Intrapartum and Postpartum Electrohysterography (EHG)  
Activity: Towards Prediction of Postpartum Hemorrhage

**Giulio Steyde**

Does Maternal Respiration Drive Fetal–Maternal Cardiovascular Coupling?

**14:50-15:10 Q & A to all presenters & whole workshop discussion**

**15:10 – 15:40 COFFEE BREAK**

**15:40 – 17:00 HIE RISK ASSESSMENT FROM CTG: RATIONALE AND PREDICTIVE MODELS**

*Chair: Antoniya Georgieva*

**15:40-16:00 Cassandra Heiselman, Cleveland Clinic Foundation (US)**

Labour outcomes and the role of pH

**16:00-16:20 Michael Kuzniewicz, Kaiser Permanente Northern California (US)**

Beyond pH: why predicting fetal acidemia is not the same as preventing brain injury

**16:20-16:40 Robert Kearney, McGill University (Canada)**

Trajectories of Contractions and Decelerations Throughout Labor

**16:40-17:00 Philip Warrick, PeriGen and McGill University (Canada)**

Clinical Insights for HIE Risk Detection from Transfer-Entropy-based Latent Representations of CTG Signals

**17:00 – 18:00 PANEL: TRENDS, CHALLENGES AND OPPORTUNITIES ON THE FETAL MONITORING COMMERCIAL FRONT**

*Chair: Rakesh Roshan*

**Flash talks / introductions from each panellist (3min)**

- **Tatiana Lashina**, Philips (NL)
- **Philip Warrick**, PeriGen (Canada)
- **James Bushby**, GE Healthcare (UK/US)
- **Sofia Blad**, Neoventa (Sweden)

**Questions to the panel:**

- 1) Have progressed with continuous intrapartum fetal monitoring in the past decade?
- 2) What was the most interesting thing or two you learned on this last workshop?
- 3) What is your advice to the community?
- 4) How will intrapartum fetal monitoring look like in 2035 worldwide?

**18:30 – 20:00 BOATS ON THE RIVER (SIGN UP NEEDED), [CHERWELL BOATHOUSE](#)**

**20:00 – 23:00 OFFICIAL WORKSHOP DINNER – [CHERWELL BOATHOUSE](#)**



## SATURDAY (27<sup>TH</sup> JUNE)

### 8:30 COFFEE + PASTRIES

#### 9:00 – 10:00 THE CLINICAL PERSPECTIVES

*Chair: Mikko Tarvonen*

**9:00-9:20 Susana Pereira, on behalf of Barts Health Perinatal Research Team, The Royal London Hospital (UK)**

How neonatal biodata can inform CTG interpretation?

**9:20-9:40 Sheng Wong, University of Oxford (UK)**

Overview of the current landscape of antepartum CTG analysis

**9:40-10:00 Migle Semenaite, Lithuanian University of Health sciences (Lithuania)**

Computerized CTG during labor: first experience in Lithuania

#### 10:00 – 11:00 COMPUTER-BASED ANALYSIS FOR FETAL ECG AND CTG

*Chair: Ivan Jordanov*

**10:00-10:20 Malin Holzmann and Farhad Abtahi, Karolinska Institutet (Sweden)**

Making the Hidden Choices in CTG Signal Processing Visible and Reportable.

**10:20-10:40 Peter Djuric, Stony Brook University (US)**

A Generative Approach to Fetal Heart Rate Monitoring via Flow Matching

**10:40-11:00 Giulia Baldazzi, University Cagliari, Italy (Italy)**

Unveiling fECG morphology from non-invasive trans-abdominal recordings by a data-driven framework

### 11:00 – 11:30 COFFEE BREAK

#### 11:30 – 12:45 BIG DATASETS FOR CTG RESEARCH / FEDERATED LEARNING POSSIBILITIES

*Chair: Emerson Keenan*

**11:30-11:50 Martin Daumer on behalf of the EB-CTG Working Group (Germany/EU)**

Towards a CTG data hub

**11:50-12:10 Imane Ben M'Barek, APHP (France)**

A new CTG multicenter open dataset (APHP-CTG) from Assistance Publique des Hôpitaux de Paris

**12:10-12:30 Samuel Boudet, University of Lille (France)**

AIM-CTG: a kaggle data challenge for CTG pattern recognition

**12:30-12:45 Whole workshop discussion**

#### 12:45 REFLECTIONS FROM THE WORKSHOP, IMPLICATIONS FOR FUTURE WORK AND CLOSING REMARKS

## SOCIAL PROGRAMME

### WEDNESDAY 24<sup>TH</sup> JUNE

#### From 18:30 onwards

Informal get together for food & drink, pop in anytime after 18:30 at the Bear - a classic Oxford pub, hidden a bit behind the busy street - please see location on [the Bear's webpage here](#) or using the barcode on the right.



### THURSDAY 25<sup>TH</sup> JUNE

#### 18:30-20:00

Sightseeing tour / scavenger hunt. Start from the workshop venue.

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#### From 19:30/20:00

Informal dinner/drinks, just turn up when you are ready with the tour: [Red Lion's webpage.](#)



### FRIDAY 26<sup>TH</sup> JUNE

#### 18:30-20:00

Punting/Boat stroll on the Cherwell river, starting from the dinner venue, near by - the [Cherwell Boathouse restaurant](#) (see also barcode on the right)

**You MUST sign up for this, places are limited to 35.** Sign up form to go out by email before the Workshop.

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#### 20:00-late

Official workshop dinner at the [Cherwell Boathouse restaurant.](#)

