



## Improving prenatal health with medical grade wearables and large scale data analysis

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**Abstract:** We are witnessing a maternal health crisis with increasing rates of maternal death, preterm births and widening of disparities in care globally. This maternal health crisis is due to a combination of increasing high risk pregnancies, shortage of care providers, and limited tools/data to predict and manage pregnancy complications.

To transform prenatal care we need better data, and to get better data we need better technology. Bloomlife is building a remote prenatal care platform to empower moms, increase access to care, and improve birth outcomes. We combine medical grade wearables with artificial intelligence to provide unprecedented insights to expectant mom and her care team, to identify and address modifiable risk factors, and to predict and prevent pregnancy complications. At the heart of our solution is the first at home clinical grade wearable that tracks critical health parameters of mom and her unborn baby, information so far restricted to prenatal visits.

In this talk, we will show how our data driven approach helps to shed light on poorly understood links between physiological changes and pregnancy outcomes. We will discuss opportunities arising from crowdsourcing clinical research, by providing consumers with clinical grade tools and data, and analyzing such data at a scale beyond what is possible in regular clinical studies. We will take specific examples from Bloomlife's research on maternal health, fetal wellbeing and labor detection.

**Biosketch:** Julien Penders is co-founder and COO at Bloomlife where he's building the future of prenatal health using wearable technologies and predictive analytics. Julien is a passionate entrepreneur with 15-year experience in R&D and product development for the medical device and digital health industry. He led international teams through the development of wearable and digital health products covering hardware, software, analytics and clinical validation. He has (co-) authored over 60 papers and 14 patents. He is a TEDx and Creativity World Forum speaker. He serves on the IEEE Technical Committee on Biomedical Health Informatics and sits on the Program Committees for several international conferences. Julien was a 2004/2005 fellow of the Belgian American Educational Foundation. He holds a M.Sc. degree in Systems Engineering from University of Liege, Belgium (2004) and a M.Sc. degree in Biomedical Engineering from Boston University MA (2006).

#### Talk recording:

<https://pitt.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=8289354a-a0ec-46c3-b0e9-adf30131546c>