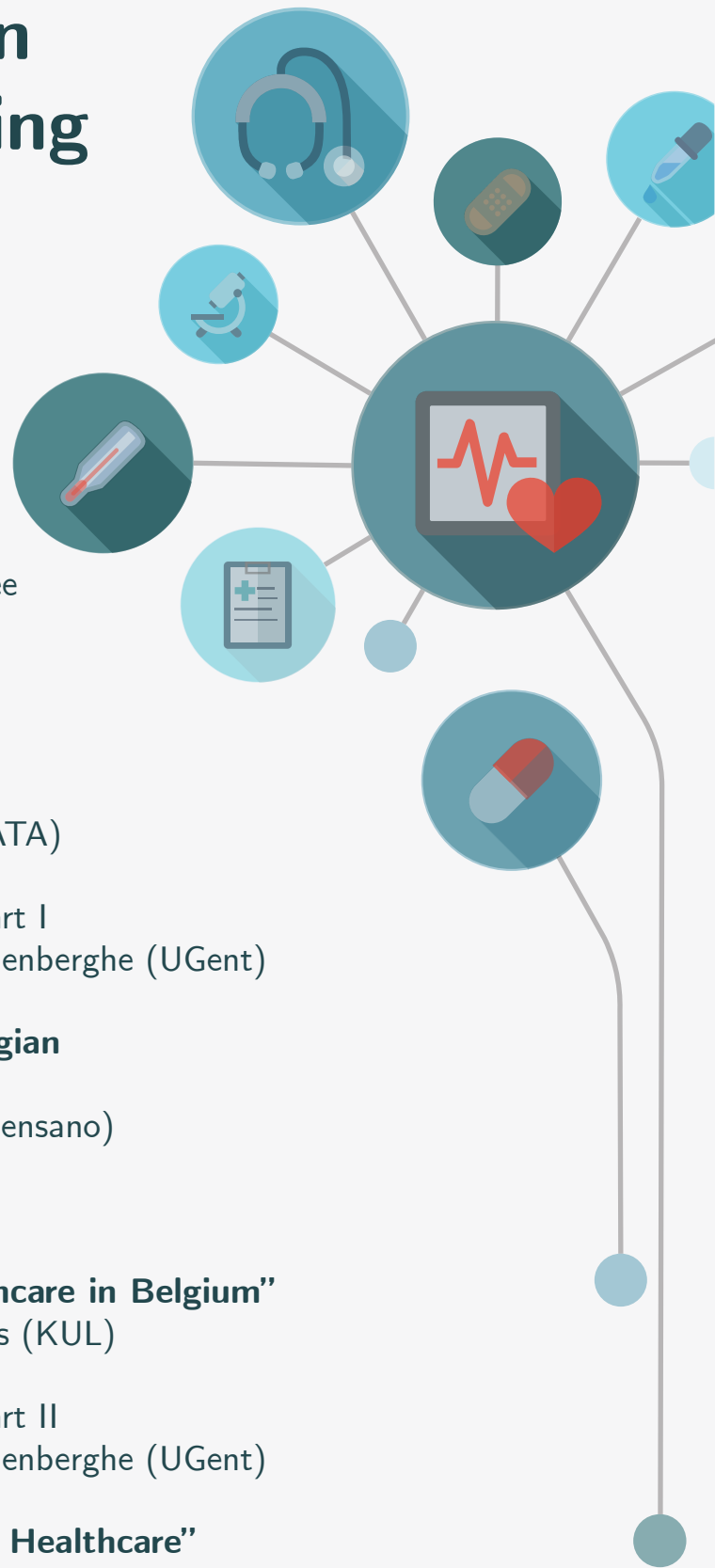


# 17th National Day on Biomedical Engineering

## Data Sciences and Healthcare

The Royal Academy for Science and the Arts of Belgium, Brussels

Friday, 30th November 2018



- 08:30 Registration, poster setup and coffee
- 09:00 Welcome  
by Prof. Marc Nyssen (VUB)
- 09:20 **“Making FAIR Data a Reality”**  
by Dr. Simon Hodson (CODATA)
- 09:50 Single slide poster presentations, part I  
hosted by Prof. Stefaan Vandenberghe (UGent)
- 10:15 **“Healthdata.be: Redesign of Belgian Healthcare Data Management”**  
by Dr. Johan Van Bussel (Sciensano)
- 10:45 Coffee break and poster session
- 11:20 **“The Impact of GDPR on Healthcare in Belgium”**  
by Prof. Frank E. Rademakers (KUL)
- 11:50 Single slide poster presentations, part II  
hosted by Prof. Stefaan Vandenberghe (UGent)
- 12:15 **“Impact of Machine Learning on Healthcare”**  
by Prof. Pierre Dupont (UCL)
- 12:45 Lunch break
- 13:30 Poster session and industry stands
- 14:30 **Parallel sessions**
- 16:15 Poster awards and drinks
- 16:45 End

## Throne Room

14:30

General introduction about parallel sessions.

14:45

### The Future of Biomedical Engineering.

*Pieter Heyvaerts, Materialise.*

Evolution of general medical understanding to predictive medical understanding, illustrated using practical case studies.

15:15

### 3D Printing of Polymers: Go Synthetic or Natural?

*Prof. Peter Dubruel, UGent.*

Pro's and con's of various polymers and printing technologies, in the setting of scaffold development for hard or soft tissue engineering applications.

15:45

### Demo: Sensor Dots.

*Jonathan Dan, Byteflies.*

Exploration of the unique role of a biomedical engineer in a company like Byteflies. Live demo of the Sensor Dots.

## Room Roi Baudouin

### Adding AI to brAIIn Image Analysis.

*Annemie Ribbens, Icometrix.*

Bridging the gap between AI algorithms and clinical practice for radiological reading in brain imaging.

### To PhD or not to PhD?

*Prof. Charlotte Debbaut, Viviana Mancini, UGent.*

*Erik Hinderdael, Joren Lambrecht, Siemens Healthineers.*

Panel discussion on the pro's and con's of a career in academia versus a career in industry.

### Bluesquare and Data Science.

*Melissa Sabatier, Bluesquare.*

Impact of data system integration, data science approaches and data visualization, in emerging economies.

## We thank our sponsors!



## PART I

SINGLE SLIDE PRESENTATIONS START AT 09:50

### BIOSIGNALS

Biosig1	Amalia Villa Gomez	Variational Mode Decomposition Features for Heartbeat Classification.
Biosig2	Dorien Huysmans	Unsupervised Artefact Detection and Screening Using EMFIT Sensor for Sleep Apnea.
Biosig3	Glen Debard	Carewear: Using Wearables in Mental Healthcare.
Biosig4	Hugo Smets	Responsive Neurostimulation Therapy for the Treatment of Refractory Epilepsy.
Biosig5	John F. Morales	Respiratory Sinus Arrhythmia in Apnea Patients with Apnea Associated Comorbidities.
Biosig6	Lars Stumpp	Characterization of Vagus Nerve Electro Neurogramm (Veng) for Seizure Detection.
Biosig7	Margot Deviaene	Automatic Detection of Sleep Apnea Using Pulse Photoplethysmography.
Biosig8	Mario Lavanga	Stress Detection in Preterm Infants Based on Brain-Heart Connectivity.
Biosig9	Ofelie De Wel	Automated EEG Sleep Staging in Preterm Infants Using Deep Learning.
Biosig10	Panagiotis Tsinganos	Gesture Recognition with EMG and Deep Learning.
Biosig11	Simon Geirnaert	Tensor-Based ECG Signal Processing Applied to Atrial Fibrillation Detection.
Biosig12	Simon Van Eyndhoven	Single-Channel EEG Classification by Multi-Channel Tensor Subspace Learning and Regression.

### BIOMECHANICS

Biomech1	Anna Aimar	Biomechanical Analysis of Different Treatments for Kiemböck's Disease.
Biomech2	Apeksha Shapeti	Screening and Engineering Extracellular Matrix Environments by Quantifying Matrix Deformations and Cellular Forces Around Angiogenic Sprouts.
Biomech3	Daimé Campos Arias	Arterial Wave Dynamics in Horses: Insights Obtained from a 1D Arterial Model.
Biomech4	Eveline De Raeve	The Complex Relation Between Foot Pathologies and Insole Design: a New Structure.
Biomech5	Federica Armaroli	Finite Element Analysis of Femoral Stem Length in a Hinged Knee Prosthesis.
Biomech6	Federico Cané	Does Left Ventricular Torsion Affect Intraventricular Fluid Dynamics?
Biomech7	Fernando Perez Boerema	Surrogate-Based Optimization of Acetabular Implant Design Through Minimization of Stress Shielding.
Biomech8	Hicham Saaid	Validation of 4D MRI Flow and 4D Echo-PIV Using Tomographic PIV in a Left Ventricle Phantom.
Biomech9	Jorge Barrasa Fano	Analysing the Resolving Power of 3D Traction Force Microscopy.
Biomech10	Majid Nazemi	In-Silico Mechanobiological Modeling of Tibial Bone Growth.
Biomech11	Nele Famaey	Flanders Institute for Biomechanical Experimentation – Fiber.
Biomech12	Viviana Mancini	Can Laser Doppler Vibrometry Detect Stenosis from Skin Vibrations?

**MEDICAL IMAGING**

MedImag1	André Diogo	GE Signa Integrated PET/MR: Evaluation of Positron Range for Clinically Relevant Pet Isotopes.
MedImag2	Charlotte Thyssen	Development of an Ultra-High Resolution Time-Of-Flight PET Detector for Total-Body PET.
MedImag3	Evgenia Papavasileiou	ETROCAD: An Improved CAD System for Lung Nodules Detection.
MedImag4	Evgenia Papavasileiou	Can Analysis of Individual Microcalcifications Lead to a CAD System for Breast Cancer?
MedImag5	Ine Dirks	Computer-Aided Diagnosis of Infarction for the Treatment of Acute Ischemic Stroke.
MedImag6	Jennifer Dhont	Real-Time Multi-Object Tracking On 2D Cine MRI Using a Tracking-Learning-Detection Framework.
MedImag7	Marek Beliš	First Steps in The Preparation of <sup>188</sup> RE-Based Radiopharmaceuticals.
MedImag8	Mariele Stockhoff	High-Resolution Monolithic Detector Design for Clinical Positron Emission Tomography Systems.
MedImag9	Panagiotis Gonidakis	Computer-Aided Detection of Lung Nodules Using Multi-Level Contextual 3D CNNs.
MedImag10	Patricio Astudillo	Towards Realistic and Tailored Medical Image Generation with Artificial Intelligence.
MedImag11	Pieter Boonen	Automated Quantification of Blood Flow Velocity from Time-Resolved CT Angiography.
MedImag12	Prakash Parappurath Vasudevan	Electrical Conductivity Imaging with 7T Preclinical MRI Using MR Electrical Properties Tomography.
MedImage13	Taylor Frantz	Augmenting Microsoft's HoloLens with Vuforia Tracking for Neuronavigation.

**MEDICAL / CLINICAL ENGINEERING**

MedEng1	Gilles Decroly	Study of a Miniaturized Soft Bending Actuator for Surgical Endoscopy.
MedEng2	Joaquin Cury	Design, Implementation and Validation of an Optoelectronic Sensing Method for Implanted Devices.
MedEng3	Loïc Blanc	Shape Memory Polymers for Smart Endoscopic and Catheter Applications.

**MODELING OF PHYSIOLOGICAL SYSTEMS**

ModPhys1	Ehsan Sadeghian	Analyzing the Influence of Driving Physico-Chemical Characteristics in Intra-Oral Bone Regeneration Using a Predictive Empirical Model.
ModPhys2	Matthias Van Impe	Modeling Lymphatic Transport: A Computational Model of a Contracting Lymphangion
ModPhys3	Mohammad Rahimi-Gorji	CFD Model of the Interstitial Fluid Pressure (IFP) in Realistic Tumor Geometries of Peritoneal Metastases from Ovarian Cancer.
ModPhys4	Quentin Goossens	In Vitro Study on the Influence of Bone Density.