



SHelC 2020

30th September – 2nd October 2020

Troyes, France

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- University of Technology of Troyes
- Centre Hospitalier de Troyes
- European Association of Hospital Managers

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- Mr. Philippe Blua, Director, Hôpitaux Champagne Sud (FR) – General Chair
- Prof. Farouk Yalaoui, Senior Vice president of University of Technology of Troyes, Director of Troyes Institute of Services and Industries of the Future, Scientific director of the Connected Innovation Chair (FR) – Co-General Chair

Conference program chairs

- Prof. Farouk Yalaoui, Senior Vice president of University of Technology of Troyes, Director of Troyes Institute of Services and Industries of the Future, Scientific director of the Connected Innovation Chair (FR)
- Prof. Nathalie Sauer, Deputy Director, LGIPM Laboratory, University of Lorraine, Université de Lorraine (FR)

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National Organization Chair

- **Prof. Lionel Amodeo**, Director, Industrial Systems Logistics & Optimization Laboratory, University of Technology of Troyes, UTT (FR)

Organization committee

- Mohsen Aghelinejad (FR)
- Lionel Amodeo (FR)

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- Nhan-Quy Nguyen (FR)
- Yassine Ouazene (FR)
- Stéphane Sanchez (FR)
- Alice Yalaoui (FR)
- Farouk Yalaoui (FR)

Keynote speakers

- Dr. Amir Nakib - Large scale optimization for deep learning: application on healthcare
- Dr. Pascal Caillet, SNDS - Système National des Données de Santé : quels accès et quels design d'études ?
- Pr. Rabaud (CHU Nancy) - Modèles de prévisions dans le cadre du COVID 19

Program

Wed. 30th september 2020	17:00 - 18:00	Registration (part 1) - Troyes Town Hall					
	18:00 - 20:00	Welcome Reception at Troyes town Hall Mr. Marc Hastert, General Secretary of EAHM Mr. Pierre Koch, Director of University of Technology of Troyes (UTT) Mr. Philippe Blua, Director of Hôpitaux Champagne Sud (HCS) Mr. François Baroin, Mayor of Troyes, President of Troyes Champagne Metropole					
Thu. 1st October 2020	8:00 - 9:00	Registration (part 2) - University of Technology of Troyes					
	9:00 - 10:00	Opening session	Mr. Philippe Pichery, President of the Departmental Council of Aube Mrs Zaynab Riet, General Delegate of Federation Hospitalière de France (FHF) Mr. Frédéric Remay , Deputy director Regional Health Agency (ARS) of Grand Est region Mr. Pierre Koch, Director of University of Technology of Troyes (UTT) Prof. Farouk Yalaoui, Senior Vice president of UTT, Director of ISIFT institute, Scientific director of the Connected Innovation Chair (UTT) Mr. Philippe Blua, Director of Hôpitaux Champagne Sud (HCS)				
	10:00 - 10:50	Plenary session 1 - Pr. Christian Rabaud, President of the Establishment Medical Committee of the Nancy CHRU - Forecasting models in the context of COVID-19 (Slides in English - Speech in French), Chairperson: Prof. Lionel Amodéo				Poster & Video	
	10:50 - 11:10	Coffee break					
	11:10 - 12:00	Plenary session 2 - Dr. Pascal Caillet, researcher at CHU of Nantes National Health Data System (SNDS): what access and what study design? (Slides in English - Speech in French),Chairperson : Prof. Nathalie Sauer					
	12:00 - 14:00	Lunch					
	14:00 - 15:30	S1-1: Technology, robotics and healthcare	S2-1: Data driven healthcare	S3-1: Healthcare Management System	S4-1: Service for the patient		S5-1: Industrial feedback
	15:30 - 16:00	Coffee break					
	16:00 - 17:30	S1-2: Technology, robotics and healthcare	S2-2: Data driven healthcare	S3-2: Healthcare Management System	S4-2: Service for the patient		S5-2: Industrial feedback

 Poster
&
Video

	18:30 - 23:00	Gala				
Fri. 2nd October 2020	9:00 - 10:00	Plenary session 3 - Dr. Amir Nakib, researcher at Université Paris Est Créteil Large scale optimization for deep learning: application on healthcare (Slides in English - Speech in French), Chairperson: Prof. Hichem Snoussi				
	10:00 - 10:30	Coffee break				
	10:30 - 12:00	S1-3: Technology, robotics and healthcare	S2-3: Data driven healthcare	S3-3: Healthcare Management System	S4-3: Service for the patient	S5-3: Industrial feedback
	12:30 - 14:00	Lunch				
	14:00 - 14:30	History of Epidemics - Mr. Philippe Blua / Prof. Farouk Yalaoui - (English)				
	14:30 - 15:15	European COVID 19 Crisis: Hospital manager feedback - Part 1 Lithuania / Germany / Sweden / Norway - (English) Chairpersons: Mr. Marc Hastert, Mr. Philippe Blua, Prof. Farouk Yalaoui				
	15:15 - 15:30	Coffee break				
	15:30 - 16:15	European COVID 19 Crisis: Hospital manager feedback - Part 2 Speakers: Alexandre Lourenço (Portugal) / Georgia Oikonomopoulou (Greece) Chairpersons: Mr. Marc Hastert, Mr. Philippe Blua, Prof. Farouk Yalaoui				
	16:15 - 17:00	European COVID 19 Crisis: Hospital manager feedback - Part 3 Speakers: Gerry O'Dwyer (Ireland) / Louise McMahon (United Kingdom) / Páll Matthíasson (Iceland) / Lajos Ari (Hungary) Chairpersons: Mr. Marc Hastert, Mr. Philippe Blua, Prof. Farouk Yalaoui				
		Closing session				

Planning, Wednesday, 30 September 2020

Welcome Reception at Troyes town Hall

Wednesday, 30 September 2020, 18:00-20:00

Mr. Marc Hastert, General Secretary of EAHM
Mr. Pierre Koch, President of University of Technology of Troyes (UTT)
Mr. Philippe Blua, Director of Hôpitaux Champagne Sud (HCS)
Mr. François Baroin, Mayor of Troyes

Planning, Thursday, 1 October 2020

Opening session

Thursday 1 October 2020, 9:00-10:00

Mr. Philippe Pichery, President of the Departmental Council of Aube
Mr. Stéphane Rouvé, Prefect of the Aube Department
Mrs Zaynab Riet, General Delegate of Federation Hospitalière de France (FHF)
Mr. Frédéric Remay, Deputy director Regional Health Agency (ARS) of Grand Est region
Mr. Pierre Koch, President of University of Technology of Troyes (UTT)
Prof. Farouk Yalaoui, Senior Vice president of UTT, director of the ISIFT institute, Scientific director of the Connected Innovation Chair (UTT)
Mr. Philippe Blua, Director of Hôpitaux Champagne Sud (HCS)

Plenary session 1, Thursday 1 October 2020

Virtual room: sheic2020.com/ps1

Physical room: Amphi M500

10:00-10:50 **Forecasting models in the context of COVID-19,** Prof. Christian Rabaud,
President of the Establishment Medical Committee of the Nancy CHRU
Chairperson: Prof. Lionel Amodeo

Plenary session 2, Thursday 1 October 2020

Virtual room: sheic2020.com/ps2

Physical room: Amphi M500

11:10-12:00 **National Health Data System (SNDS): what access and what study design?** Dr. Pascal Caillet,
researcher at CHU of Nantes
Chairperson: Prof. Nathalie Sauer

The First Session: 14:00-15:30

Session 1.1: Technology, robotics and healthcare

1 October 2020, 14:00-15:30

Chairpersons: Dr. Farah Chehade

Virtual room: sheic2020.com/s11

Physical room: A001

14:00-14:20 **Object Localization in Indoor Environments,** Daniel Alshamaa and Farah Chehade.#19

- 14:30-14:50** **An Automatic Turn Phase Detection Method based on Doppler Radar System with CWT Analysis**, Racha Soubra, Aly Chkeir and Farah Chehade. #34
- 15:00-15:20** **Evidential prediction of atrial fibrillation with rejection**, Mohamed Mroueh, Farah Chehade and Fahed Abdallah. #31

Session 2.1: Data driven healthcare
1 October 2020, 14:00-15:30
Chairpersons: Dr. Quy Nguyen
Virtual room: sheic2020.com/s21
Physical room: C001

- 14:00-14:20** **Manifold learning for Amyotrophic Lateral Sclerosis prognosis: development of a prognosis model**, Vincent Grollemund, Jean-François Pradat-Peyre, François Delbot, Gaétan Le Chat and Pierre-François Pradat. #1
- 14:30-14:50** **Machine learning and big data analytics techniques to improve prediction in the field of medical remote monitoring**, Anna Karen Garate Escarmilla, Amir Hajjam El Hassani and Emmanuel Andres. #26
- 15:00-15:20** **Visualizing electronic medical records of diabetic patients using pairwise similarity for explainable structuring**, Joris Falip, Sara Barraud and Frédéric Blanchard. #18

Session 3.1: Healthcare Management System
1 October 2020, 14:00-15:30
Chairpersons: Dr. Christophe Sauvey / Dr. Oumayma Bahri
Virtual room: sheic2020.com/s31
Physical room: N101

- 14:00-14:20** **Solving emergency department resources management using a joint simulation optimization approach**, Ibtissem Chouba, Farouk Yalaoui, Lionel Amodeo, Taha Arbaoui, Stéphane Sanchez and David Laplanche. #6
- 14:30-14:50** **A framework for chemotherapy planning optimization**, Quoc Nhat Han Tran, Quy Nguyen, Hicham Chehade, Frédéric Dugardin, David Laplanche, Stéphane Sanchez and Rezvan Sadeghi. #32
- 15:00-15:20** **Predictive-reactive strategy for operating rooms rescheduling**, Ayoub Tighazoui, Christophe Sauvey and Nathalie Sauer. #9

Session 4.1: Service for the patient
1 October 2020, 14:00-15:30
Chairpersons: Dr. David Laplanche
Virtual room: sheic2020.com/s41
Physical room: XXX

- 14:00-14:20** **Suggested tools to help people with chronic illnesses return home or stay at home: a practical case of diabetes**, David Annebicque, Mohammed-Amine Haraoubia, Mohammed El-Saïd Berkani, Pr. Abdelaziz Hamzaoui. #20
- 14:30-14:50** **VNS-based algorithms for home care routing and scheduling problem with realistic constraints**, Sana Frifita and Malek Masmoudi. #4
- 15:00-15:20** **Facility location of healthcare providers of rural services in developing countries: Insights from a Mixed Integer Linear Programming (MILP) formulation**, Gonzalo Mejía, Daniela Granados, Gabriela Rico, Daniela Cuéllar, Nicolás Montes. #25

Session 5.1: Industrial feedback

1 October 2020, 14:00-15:30

Chairpersons: Dr. Hicham Chehade

Virtual room: sheic2020.com/s51

Physical room: XXX

- 14:00-14:20** Medimex, exoskeleton, Audrey Chauffour.
- 14:30-14:50** OMEDYS, Telemedicine: is the remote medical act a successful one? History, relevance and performance of teleconsultation, Dr. Arnaud Devillard et Dr. Jérémy Goudour #39
- 15:00-15:30** Pulsy: Parceo, the new health path for users in the East of France, Gregory Thiebaut.

The second Session: 16:00-17:30

Session 1.2: Technology, robotics and healthcare

1 October 2020, 16:00-17:30

Chairpersons: Dr. Aly Chkeir

Virtual room: sheic2020.com/s12

Physical room: A001

- 16:00-16:20** A Detrended Fluctuation Analysis to differentiate between a turn and straight path in the Timed Up and Go test, Dona Bou Zeidan and Aly Chkeir. #35
- 16:30-16:50** Fieldwork and field trials in hospitals: Co-designing a robotic solution to support data collection in geriatric assessment, Karine Lan Hing Ting, Dimitri Voilmy, Quitterie De Roll, Ana Iglesias and Rebeca Marfil. #23
- 17:00-17:20** Sound Sensor to Detect the Number of People in a Room, Sami Boutamine, Dan Istrate, Jerome Boudy, Yoann Fousseret and Yves Parmantier. #30

Session 2.2: Data driven healthcare

1 October 2020, 16:00-17:30

Chairpersons: Dr. Stéphane Sanchez

Virtual room: sheic2020.com/s22

Physical room: C001

- 16:00-16:20** Clustering a health dataset based on diagnostic co-occurrences, Adrien Wartelle, Farah Chehade, Farouk Yalaoui, David Laplanche and Stéphane Sanchez. #27
- 16:30-16:50** An unsupervised learning approach to hospital classification, Jan Chrusciel, Adrien Le Guillou, Adrien Wartelle, David Laplanche, Sandra Steunou, Marie-Caroline Clément and Stéphane Sanchez. #22
- 17:00-17:20** IoT Data Assembly and Recording, Vincent Zalc, Matthias Pideri, Dan Istrate, Carla Taramasco and Gaston Marquez. #29

Session 3.2: Healthcare Management System

1 October 2020, 16:00-17:30

Chairpersons: Dr. Matthieu Godichaud / Mr. Laurent Dorigo

Virtual room: sheic2020.com/s32

Physical room: N101

- 16:00-16:20** Optimization in hospital logistics: improving working conditions and employees well-being, Fatima Abderrabi, Matthieu Godichaud, Alice Yalaoui, Farouk Yalaoui, Lionel Amodeo and Ardian Qerimi. #11

- 16:30-16:50 Optimization in hospital logistics: food production scheduling in hospital catering,** Fatima Abderrabi, Matthieu Godichaud, Alice Yalaoui, Farouk Yalaoui, Lionel Amodeo and Ardian Qerimi.#12
- 17:00-17:20 A Laundry Management for Hospital Supply Chain,** Nadia Ndhaief, Zied Hajej and Nidhal Rezg.#8

Session 4.2: Service for the patient

1 October 2020, 16:00-17:30

Chairpersons: Prof. Atidel B. Hadj-Alouane / Dr. Frédéric Dugardin

Virtual room: sheic2020.com/s42

Physical room: XXX

- 16:00-16:20 Patient Flow Forecasting in an emergency department,** Frédéric Dugardin, Farouk Yalaoui, Lionel Amodeo, David Laplanche and Philippe Blua.#15
- 16:30-16:50 Generation of a benchmark fitting with HHC problem,** Colin Huvent, Caroline Gagné and Aymen Sioud.#16
- 17:00-17:20 Using Discrete Event Simulation to improve the performance of an Outpatient Department: Case study of a Tunisian public Hospital,** Hana Ben Mbarek, Atidel B. Hadj-Alouane, Najla Aissaoui Omrane and Safa Bhar Layeb.#10

Session 5.2: Industrial feedback

1 October 2020, 16:00-17:30

Chairpersons: Mr. Marc Pavageau / Dr. Farah Chehade

Virtual room: sheic2020.com/s52

Physical room: XXX

- 16:00-17:30 ELODEA Ecosystem: Health logistics for sensitive medical products, integrated and unique solution using drones, for emergency and for regular flows.**

Planning, Friday, 2 October 2020

Plenary session 3, Friday 2 October 2020

Virtual room: sheic2020.com/ps3

Physical room: Amphi M500

9:00-10:00 Large-scale optimization for deep learning: application on healthcare, Dr. Amir Nakib, researcher at Université Paris Est Créteil.
Chairperson: Prof. Hichem Snoussi

Session 10:30-12:00

Session 1.3: Technology, robotics and healthcare

2 October 2020, 10:30-12:00

Chairpersons: Dr. Murat Afsar / Dr. Faicel Hnaïen

Virtual room: sheic2020.com/s13

Physical room: XXX

10:30-10:50 Sensor Based Wearable Assistive Device for Visually Impaired People, SP.Rajamohana, Zbigniew M. Wawrzyniak, E.G Radhika, S. Priya, S. Madhumita, and S. Surabhi.#2

11:00-11:20 Cybersecurity: a major issue for the business continuity of healthcare establishments as well as for patient safety, Lionel Prades #40

11:30-11:50 Combined computational and driven-modelling modelling of blood coagulation to predict the response of individual patients to anticoagulant therapy, Anass Bouchnita.#37

Session 2.3: Data driven healthcare

2 October 2020, 10:30-12:00

Chairpersons: Prof. El Ghazali Talbi / Dr. Mohsen Aghelinejad

Virtual room: sheic2020.com/s23

Physical room: C001

10:30-10:50 Leveraging Blockchain Technology to Enhance Pharmaceutical Supply Chain Management, Shayma Romdhani, Issam Nouaouri, Jihene Tounsi, Hamid Allaoui and Said Gattoufi.#36

11:00-11:20 Measuring the expression of RNA sequences in hundreds of RNA-seq libraries at nucleotide resolution, Mariam Bouzid, Daniel Gautheret and Rayan Chikhi.#13

11:30-11:50 Clinical Laboratory Optimization, Sohrab Faramarzi Oghani, El Ghazali Talbi and Eric Varlet. #28

Session 3.3: Healthcare Management System

2 October 2020, 10:30-12:00

Chairpersons: Dr. Hicham Chehade/ Prof. Lionel Amodeo

Virtual room: sheic2020.com/s33

Physical room: A002

10:30-10:52 Fleet size and mix pickup and delivery problem with Time windows, Moise Tchoupo, Lionel Amodeo, Alice Yalaoui and Farouk Yalaoui.#5

10:52-11:14 OPTA Logistics: logiciel d'optimisation de la logistique hospitalière, Alice Yalaoui, Lionel Amodeo, Farouk Yalaoui, Moise Tchoupo, Pauline Flori, Philippe Blua, Hicham Chehade and Kévin Roy.#33

11:14-11:36 OPTA Urgences: un logiciel innovant de prévisions d'afflux de patients aux services d'urgences, Farouk Yalaoui, Lionel Amodeo, Frédéric Dugardin, Mohamed Afilal, David Laplanche, Philippe Blua, Hicham Chehade and Kévin Roy.#14

11:36-12:00 The impact of new technologies and hospital concentration on the risks of healthcare delivery organizations, Pierre-Yves Antier.#41

Session 4.3: Service for the patient

2 October 2020, 10:30-12:00

Chairpersons: Dr. Taha Arbaoui / Dr. Auguste Rakotondranaivo

Virtual room: sheic2020.com/s43

Physical room: XXX

- 10:30-10:50** A novel system for patient orientation to and in emergency departments, Taha Arbaoui, Hicham Chehade, Farouk Yalaoui and Alice Yalaoui.#7
- 11:00-11:20** Decision support tool for the food supply chain to prevent undernutrition in the elderly at home the elderly at home, Auguste Rakotondranaivo, Christine Miro, Sarah Ferhah, Mark Kennet and Nathalie Rouyer.#17
- 11:30-11:50** Towards Frailty Assessment using a Multimodal System?, Manuel Abbas, Majd Saleh, Dominique Somme and Régine Le Bouquin Jeannès.#21

Session 5.3: Industrial feedback

2 October 2020, 10:30-12:00

Chairpersons: Dr. Yassine Ouazene

Virtual room: sheic2020.com/s53

Physical room: XXX

- 10:30-10:50** Indoor Santé, PEP'IT: SaaS platform for the acquisition, management and distribution of sports and health data.
- 11:00-11:20** ASTALIA, the impact of France Relance on the financing of Smart Health projects.
- 11:30-11:50** H'ability, Virtual reality at the service of the handicap, Bérengère HENRION. #38

Friday 2 October 2020, 14:00-17:00

European COVID 19 Crisis: Hospital manager feedback

Chairpersons: Mr. Marc Hastert, Mr. Philippe Blua, Prof. Farouk Yalaoui

Virtual room: sheic2020.com/s6

Physical room: Amphi M500

- 14:00-14:30** History of Epidemics – Mr. Philippe Blua / Prof. Farouk Yalaoui
- 14:30-15:15** European COVID 19 Crisis: Hospital manager feedback - Part 1
Lithuania / Germany / Sweden / Norway
- 15:30-16:15** European COVID 19 Crisis: Hospital manager feedback - Part 2
Speakers: Alexandre Lourenço (Portugal) / Georgia Oikonomopoulou (Greece)
- 16:15-17:00** European COVID 19 Crisis: Hospital manager feedback - Part 3
Speakers: Gerry O'Dwyer (Ireland) / Louise McMahon (United Kingdom) / Páll Matthíasson (Iceland) / Lajos Ari (Hungary)