



# ICCAI'21 PROGRAM



## “AI in Critical Illness: Emergence and Emergent Issues” All times are Eastern Time Zone (EST)

Day 1	Wednesday, September 8, 2021
<b>8:00-8:10</b>	<b>Introduction and Welcome</b> (Gilles Clermont, SCAI President)
<b>8:10-8:40</b>	<b>Keynote (P0)- Clinicians on the move: the promise of data science in intensive care</b> (M. Cecconi, Humanitas University, Milan, Italy, President ESICM)
<b>8:40-9:05</b>	<p><b>Thematic session I: Health Data democratization: challenges</b> Session Chair(s): S. Zenker (Univ. of Bonn, Bonn, Germany)</p> <p>P1. Patient Participation and consent for secondary use of health data – A U.S. perspective (A. Kasarkis, Sema4, Stamford, CT, USA)</p>
<b>9:05-9:30</b>	P2. Patient Participation and consent for secondary use of health data – A European perspective (S. Zenker, Univ. of Bonn, Bonn, Germany)
<b>9:30-9:55</b>	P3. Algorithmic approaches to privacy protection in data driven biomedical research (F. Prasser, Berlin Institute of Health, Germany)
<b>9:55-10:45</b>	<b>Discussion round table</b> (Zenker, Kasarkis, Prasser)
<b>10:45-11:25</b>	<p><b>Abstract session I</b></p> <p>A1. Application of Co-occurring Token Framework to EHR data: A case study in predicting ARDS (Duan et al, Duke University, Durham, NC, USA)</p> <p>A2. Prediction of Successful Extubation for Patients with Difficult Weaning Using Machine Learning Algorithms in Time Series Data (Dietz et al, Ludwig Maximilians University, Munich, Germany)</p> <p>A3. Characterization of Vascular System During Septic Shock Resuscitation with Esmolol Treatment: An Explorative Analysis on a Swine Protocol (Carrara et al, Politecnico di Milano, Milan, Italy; Hopital Erasme, Université Libre de Bruxelles (ULB), Brussel, Belgium)</p> <p>A4. Hemorrhage <i>In Silico</i>: Integrating Large-Animal and Human Data to Model Inflammation, Coagulopathy, and Resuscitation in Severe Trauma (Cannon et al, Univ. of Pennsylvania, Philadelphia, PA, USA; Uniformed Services University of the Health Sciences, Bethesda, MD, USA; Immunetrics, Inc., Pittsburgh, PA, USA; Univ. of Pittsburgh, Pittsburgh, PA, USA; University of Alabama, Birmingham, AB, USA; Univ. of Texas Health Science Center at Houston, Houston, TX, USA; US Army Institute of Surgical Research, Fort Sam Houston, TX, USA)</p>
<b>11:25-12:15</b>	<b>Lunch Break</b>

	<b>Thematic Session II: Mechanistic modeling and therapeutics</b> Session Chair(s): Y. Vodovotz (University of Pittsburgh, Pittsburgh, PA, USA)
12:15-12:45	<b>Keynote (P4)</b> <i>In silico</i> bacteria: translational implications (M. Covert, Stanford Univ., CA, USA)
12:45-13:10	P5. Model predictive control of wound healing (M. Gomez, Baskin School of Engineering, Univ. of California at Santa Cruz, CA, USA)
13:10-13:35	P6. Model-based control and Reinforcement Learning (RC. Cockrell, Univ. of Vermont, VT, USA)
13:35-14:00	<b>Discussion round table</b> (Vodovotz, Covert, Gomez, Cockrell)

Day 2	Thursday, September 9, 2021
	<b>Thematic session III: Modern Reinforcement Learning (RL) in Critical Care</b> Session Chair(s): G. Clermont (Univ. of Pittsburgh, Pittsburgh, PA, USA)
8:00-8:25	P7. Reinforcement Learning for sepsis: Pros (M. Komorowski, Faculty of Medicine, Imperial College London, UK)
8:25-8:50	P8. Reinforcement Learning for sepsis: Cons (P. Elbers, Intensive Care Medicine, Amsterdam UMC, Netherlands)
8:50-9:40	<b>Discussion round table</b> (Komorowski, Elbers, Clermont)
	<b>Abstract session II</b>
9:40-9:50	A5. Challenges in Applying Deep Reinforcement Learning for Critical Care Applications (Nanayakkara et al, University of Pittsburgh, Pittsburgh, PA, USA)
9:50-10:00	A6. Baseline Predictors of Hypotension in Critically Ill Patients with AKI Receiving Intermittent Dialysis (McLaverty et al, University of Pittsburgh, Pittsburgh, PA, USA)
10:00-10:10	<b>SCAI and JCC: Jan Bakker</b>
10:10-10:50	<b>SCAI Business Meeting</b>
10:50-11:30	<b>Lunch Break</b>
	<b>Thematic Session IV: Data Science in Intensive Care: the vision</b> Session Chair(s): G. Clermont (Univ. of Pittsburgh, Pittsburgh, PA, USA)
11:30-11:55	P9. Society for Critical Care Medicine: Data Science section (R.D. Stevens, Johns Hopkins Univ. School of Medicine, Baltimore, MD, USA)
11:55-12:20	P10. European Society of Intensive Care Medicine: Data Science section (A. Ercole, Univ. of Cambridge, UK)
12:20-12:45	P11. The Joint Data Science Task Force (M. Churpek, Dept. of Medicine, Univ. of Wisconsin, Madison, WI, USA)
12:45 - 13:20	<b>Discussion round table</b> (Clermont, Stevens, Ercole, Churpek)

<b>13:20-14:00</b>	<p><b>Abstract session III</b></p> <p>A7. Modeling Organ Failure using Evolutionary Games with Resource and Environment Feedback (Papadopoulos et al, University of Pittsburgh, Pittsburgh, PA, USA)</p> <p>A8. Impact of Nerve Repair on Cross-Tissue Inflammatory Networks following Vascularized Composite Allotransplantation in Rats (Shah et al, University of Pittsburgh, Pittsburgh, PA, USA)</p> <p>A9. Inferring Patient Specific Cardiovascular States by Physiology Driven Self Supervised Learning (Nanayakkara et al, University of Pittsburgh, Pittsburgh, PA, USA; Carnegie Mellon University, Pittsburgh, PA, USA)</p> <p>A10. Identification of Endotypes of Hospitalized COVID-19 Patients (Ranard et al, Columbia University, New York, NY USA; University of Pittsburgh, Pittsburgh, PA, USA; California State University, Long Beach, CA, USA)</p>
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Day 3	Friday, September 10, 2021
<b>8:00-8:10</b>	<b>Introduction and Welcome</b> (Yoram Vodovotz, Univ. of Pittsburgh)
<b>8:10-8:40</b>	<b>Keynote - Accelerating trust in Healthcare AI</b> (Sean Manion, ConsenSys Health, USA)
<b>8:40-9:05</b>	<p><b>Thematic session V: Learning across environments</b> Session Chair(s): L. Hinske (Univ. Munich, Germany)</p> <p>P12. Reliable Response Data Discovery (R2D2): A common data model approach for federated learning (L. Neuman, Ludwig-Maximilians-University of Munich, Munich, Germany)</p>
<b>9:05-9:30</b>	P13. DataSHIELD as a tool for distributed analyses - Setup in German university hospitals (V. Hoffmann, Ludwig-Maximilians-University of Munich, Munich, Germany)
<b>9:30-9:55</b>	P14. How federated AI is being deployed for point of care & how technology supports the process (C. Rhodes, NVIDIA)
<b>9:55-10:20</b>	P15. Privacy for federated Deep Learning – What can we learn from Imaging (D. Rückert, Technical University of Munich, Munich, Germany)
<b>10:20-10:45</b>	<b>Discussion round table</b>
	<p><b>Thematic Session VI: AI: please explain yourself</b> Session Chair(s): Randall Moorman (Univ. of Virginia, Charlottesville, VA, USA)</p>



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<b>10:45-11:15</b>	<b>Keynote - Explainable and Interpretable AI</b> (C. Rudin, Duke Univ., Durham, NC, USA)
<b>11:15-11:35</b>	P16. Knowing the Unknowable: Model Interpretability in EHR-based Risk Prediction (M. Engelhard, Duke University, Durham, NC)
<b>11:35-11:55</b>	P18. Responsible, Explainable AI Modeling Engages Domain Experts from the Start (A. Flower, AI Zwei)
<b>11:55-12:55</b>	<b>Discussion round table</b>
<b>12:55-13:00</b>	<b>Concluding remarks</b>