



ICCAI'17 PROGRAM

| Wednesday | July 26th, 2017 |
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| 16:30–18:00 | SCAI Business Meeting - all ICCAI attendees welcome! Hotel Michelangelo (see map p.3) |
| 19:30 | SCAI Board and Conference Organizers Dinner Hotel Michelangelo (see map p.3) |


Conference Site:

Dept. of Electronics Information, and Bioengineering (DEIB), Politecnico di Milano, via Ponzio 34/5, Conference room (plenary) and Seminar room (posters) (see p.3)

| Thursday am | July 27th, 2017 |
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| 8:00–8:30 | <i>Registration</i> |
| 8:30–9:15 | Welcome |
| 9:15–11:00 | <i>Diverse Focuses on Complex Acute Illness</i> <u>Chair:</u> Tim Buchman and Giuseppe Baselli <u>Keynote:</u> Computing Cardiac Control Complexity and Cardioventilatory Coupling in Acute Illness (<u>Alberto Porta</u>) <u>Plenary and Podium presentations:</u> <ol style="list-style-type: none"> 1. The Times of Our Lives (<u>Tim Buchman</u>) 2. Assessment of the status of deep blood vessels by means of video camera (<u>Alexei Kamshilin</u>) 3. Treatment of stable COPD patients in 2050: will extracorporeal CO2 removal play a role? (<u>Stefano Nava</u>) |
| 11:00–11:30 | <i>Coffee break</i> |
| 11:30–13:00 | <i>ICU monitoring</i> <u>Chair:</u> Randall Moorman and Maria Gabriella Signorini <u>Plenary and Podium presentations:</u> <ol style="list-style-type: none"> 1. The state of the art of predictive analytics monitoring (<u>Randall Moorman</u>) 2. A Modified Weibull-Cox Proportional Hazards Model Accurately predicts ICU-onset Sepsis in Critically Ill Patients Prior to Clinical (<u>Matthew Stanley</u>) 3. Metabolomics shows significant disruptions to metabolism after porcine burn injury (<u>Elizabeth Lusczek</u>) |
| 13:00–14:30 | <i>Poster Sessions (see list on the last page) & buffet</i> |

| Thursday pm | July 27 th , 2017 |
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| 14:30–16:30 | <p><i>Mathematical and Computational Modeling Approaches</i> <u>Chair:</u> Judy Day and Ruben Zamora</p> <p><u>Keynote:</u> Modelling the Complexity of Acute Illness Epidemiology (<u>Marino Gatto</u>)</p> <p><u>Plenary and Podium presentations:</u></p> <ol style="list-style-type: none"> 1. Mechanistic mathematical modeling approaches: an introduction with applications to complex immune processes (<u>Judy Day</u>) 2. Applications for Data-driven Analyses (<u>Ruben Zamora</u>) 3. Modeling the Metabolic Response to Acute Illness (<u>Elizabeth Luszczek</u>) 4. Estimation of properties of the heart from beat to beat pulse pressure variations in atrial fibrillation using a mechanistic mathematical model: input data dependence of posterior uncertainty and model degeneration (<u>Maximilian Oremek</u>) |
| 16:30–17:00 | <i>Coffee break</i> |
| 17:00–18:30 | <p><i>EC FP7 ShockOmics International Workshop</i> <u>Chair:</u> Randall Moorman and Maria Claudia Irigoyen</p> <p><u>Plenary and Podium presentations:</u></p> <ol style="list-style-type: none"> 1. Metabolomic state as early indicator of responsiveness to therapy in the acute phase of septic shock (<u>Alice Cambiagli</u>) 2. The role of fluid accumulation in early septic shock: differences in ANS-driven response to therapy (<u>Marta Carrara</u>) 3. Autodigestion as Mechanism for Multi-Organ Failure in Shock (<u>Geert Schmid-Schonbein</u>) 4. Peptidomic characterization of hemorrhagic shock plasma samples: effects of tranexamic acid (<u>Elisa Maffioli</u>) 5. Clustering Shock in the Acute Phase using Graphical Models (<u>Federico Aletti</u>) |



| Friday am | July 28 th , 2017 |
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| 8:30–10:00 | <p><i>Acute kidney injury (AKI) and organs cross-talk: new paradigms</i> (sponsored by Fresenius Medical Care) <u>Chair:</u> Gilles Clermont, Manuela Ferrario</p> <p style="text-align: right;"></p> <p><u>Plenary and Podium presentations:</u></p> <ol style="list-style-type: none"> 1. “Large databases in acute kidney injury” or “Criteria for AKI: a model-based perspective” (Gilles Clermont) 2. Cardiovascular and sympathetic nervous system interaction in acute kidney injury” (Federico Pieruzzi) 3. Detrimental mechanisms of organ cross-talk during acute kidney injury (Vincenzo Cantaluppi) 4. Acute kidney Injury and Fluid assessment in critical care units (Francesco Garzotto) |
| 10:00–10:30 | Coffee break |
| 10:30–12:15 | <p><i>Coagulopathy & Circulating Biomarkers</i> <u>Chair:</u> Mitchell Cohen and Markus Huber Lang</p> <p><u>Keynote:</u> Complex Crosstalking Complement and Coagulation System after Polytrauma (Markus Huber Lang)</p> <p><u>Plenary and Podium presentations:</u></p> <ol style="list-style-type: none"> 1. Predicting and modeling coagulation after injury. Towards precision trauma care (Mitchell Cohen) 2. The complexity of sepsis as seen from circulating biomarkers. The ALBIOS trial” (Serge Masson) |
| 12:15–14:00 | <i>Poster Sessions</i> (see list on the last page) & buffet |



| Friday pm | July 28 th , 2017 |
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| 14:00–15:45 | <p><i>Systems Biology</i> <u>Chair:</u> Yoram Vodovotz and Sven Zenker</p> <p><u>Keynote:</u> Ageing Populations, Complex Diseases and Unmet Medical Need: A Challenge for In Silico Medicine (<u>Adriano Henney</u>)</p> <p><u>Plenary:</u></p> <ol style="list-style-type: none"> 1. Integrating Data-Driven and Mechanistic Computational Models of Inflammation in Acute Illness (<u>Yoram Vodovotz</u>) 2. Mechanistic mathematical models and data driven methods for translational biomedical applications: mutually exclusive or fruitfully synergistic (<u>Sven Zenker</u>) 3. Panel Discussion “<i>In silico</i> medicine” |
| 15:45–16:15 | <i>Coffee break</i> |
| 16:15–18:00 | <p><i>Lung Injury</i> <u>Chair:</u> Andriy Batchinsky and Andrea Aliverti</p> <p><u>Keynote:</u> Integrative Genomic, Transcriptomic, and Proteomic Approaches to Complex Acute Lung Injury Syndrome Endotypes (<u>Jason D. Christie</u>)</p> <p><u>Plenary and Podium presentations:</u></p> <ol style="list-style-type: none"> 1. Nitric Oxide: more than just a pulmonary vasodilator (<u>Don Null</u>) 2. Ventilator-related mechanical power: real-time calculation and evaluation with models using different estimates of resistance and elastance (<u>Andrea Aliverti</u>) 3. Volutramua versus atelectrauma: insights from imaging, mechanics and clinical trials (<u>Lorenzo Ball</u>) |
| 20:00 | <i>Gala Dinner at Hotel Michelangelo</i> |

| Saturday | July 29 th , 2017 |
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| 8:45–10:00 | <p><i>Patho-physiology of hemodynamic control in acute illness</i> <u>Chair:</u> Maria Claudia Irigoyen and Federico Aletti</p> <p><u>Plenary and Podium presentations:</u></p> <ol style="list-style-type: none"> 1. Baroreflex Sensitivity and Mortality in Septic Dysfunction (<u>Maria Claudia Irigoyen</u>) 2. Enteral protease inhibition in hemorrhagic shock: effect on autonomic (<u>Federico Aletti</u>) 3. Advanced signal processing for monitoring and assessment in the ICU (<u>Riccardo Barbieri</u>) 4. Adherence to Individualized Fluid and Vasopressor Dosing Recommendation is Associated with Mortality Reduction in Sepsis: A Machine Learning Approach (<u>Shamim Nemati</u>) |
| 10:00–10:30 | <i>Coffee break</i> |
| 10:30–12:15 | <p><i>Respiratory assistance</i> <u>Chair:</u> Andriy Batchinsky and Thomas Langer</p> <p><u>Keynote:</u> Future Prospective in Extracorporeal Organs Support (<u>Alberto Zanella</u>)</p> <p><u>Plenary and Podium presentations:</u></p> <ol style="list-style-type: none"> 1. ECMO transport of ARDS patients: the clinicians perspective (<u>Mai James Lantry</u>) 2. Aeromedical evacuation at ground and high altitude using the MERK autonomous critical care platform: the researchers perspective (<u>Andriy Batchinsky</u>) 3. Mechanical ventilation during extracorporeal respiratory support: two cooks spoil the broth? (<u>Thomas Langer</u>) |
| 12:15–13:15 | <i>Buffet</i> |
| 13:15–14:30 | <p><i>Closing ceremony and Concluding Remarks</i></p> <ol style="list-style-type: none"> 1. Societally and Professionally Responsible Publishing (<u>Philip Lumb</u>) 2. The Future of SCAI (<u>Mitchell Cohen</u>) 3. Thanks on behalf of the Local Organizers (<u>Giuseppe Baselli</u>) |
| 14:30–19:00 | <p><i>Social Event: Visit to Milan</i> Guided tour by coach, leaving from the conference site.</p> <ol style="list-style-type: none"> 1. <i>Ca' Granda ancient hospital</i> (built in 1456, now University of Milano) 2. <i>Basil of Sant'Ambrogio</i> (oldest Romanic church in Milano, started in 379) <p>Return to Hotel area at the Central Station</p> |

List of Posters

On display throughout Thursday July 28th and Friday July 29th, 2017

Contributed abstracts

1. The selective surgical post-operative sepsis incidence, inhospital mortality and 1-year post discharge mortality (**Jack Chen**)
2. Performance of an automated SIRS detection and quantification algorithm for sepsis prediction in a non-selected cohort of ICU patients (**Michael Haggmann**)
3. Assessment of the status of deep blood vessels by means of video camera (**Alexei Kamshilin**)
4. An audit of cerebral perfusion pressure monitoring in a level one trauma neurointensive care unit: target CPP and transducer positioning (**Shayda Karimi**)
5. Echosonography of the internal jugular vein in the estimation of the volumetric status (**Viktor Kolerov**)
6. Metabolomics shows significant disruptions to metabolism after porcine burn injury (**Elizabeth Luszczyk**)
7. Mechanistic modeling of hemoglobin glycation and red blood cell kinetics enables personalized diabetes monitoring (**Roy Malka**)
8. National Trauma Care System: Strategies and Approaches to Achieve Zero Preventable Deaths (**Asad Moten**)
9. Adherence to Individualized Fluid and Vasopressor Dosing Recommendation is Associated with Mortality Reduction in Sepsis: A Machine Learning Approach (**Shamim Nemati**)
10. Estimation of properties of the heart from beat to beat pulse pressure variations in atrial fibrillation using a mechanistic mathematical model: input data dependence of posterior uncertainty and model degeneration (**Maximilian Oremek**)
11. Restrictive guidelines in a strained health system do little to help those with acute pancreatitis (**M R Sait**)
12. A Modified Weibull-Cox Proportional Hazards Model Accurately Predicts ICU-onset Sepsis in Critically Ill Patients Prior to Clinical Recognition (**Matthew Stanley**)
13. Heart Rate Variability Detects Sepsis from Urinary Tract Infection during the First Two Hours after ICU Admission (**Ravi Radhakrishnan**)

EC FP7 ShockOmics International Workshop



Chair: Randall Moorman and Maria Claudia Irigoyen

1. A porcine model of severe hemorrhagic shock with fluid and blood resuscitation to evaluate plasma peptidomic modifications (**Giovanni Babini**)
2. Peptidomics: an innovative approach to Study the Auto-digestion hypothesis in Septic Shock Patients (**Julia Bauzai**)
3. Differential gene expression in septic shock patients according to the early supportive therapy response (**Daniele Braga**)
4. An in vitro model for cardiogenic and septic shock drug screening using microfluidics (**Claudio Storini**)