# Computing in Engineering Forum

**AGENDA**

**September 10-11, 2019**

**Discovery Building**

**330 N Orchard Street, Madison WI**

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**Tuesday, September 10**

<table>
<thead>
<tr>
<th>Time</th>
<th>Orchard View Room</th>
<th>Room TBD</th>
<th>Researcher's Link Room</th>
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</thead>
<tbody>
<tr>
<td>7:30am-8:00am</td>
<td>Registration in Atrium</td>
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</table>
| 8:00am-8:15am | Welcome and Logistics  
Professor Dan Negrut,  
UW-Madison |          | Welcome and Logistics  
Professor Victor Zavala,  
UW-Madison |
| 8:15am-9:00am | Autonomous Vehicle Shuttle  
Project in the City of Madison  
Jon Riehl, Traffic Operations and Safety Laboratory, UW-Madison | NA | Advances and Opportunities in Machine Learning and AI  
Process Industries  
Leo Chiang, Dow Chemical |
| 9:00am-9:30am | Networking/Coffee Break in Atrium |          | AI and MPC for Building  
Systems  
Kirk Drees, Johnson Controls |
| 9:30am-10:15am | Experimental and Modeling  
Capabilities for Off-road Mobility  
Dr. Bohumir Jelinek, Center for  
Advanced Vehicular Systems, Mississippi State University | Direct Accelerated Geometry  
Monte Carlo (DAGMC)  
Roadmap: Past to Future  
Speaker TBA | Optimization in Machine  
Learning and Control  
Steve Wright, UW-Madison |
| 10:15am-10:45am | Using Chrono to Assess  
Planetary Rover Performance:  
Validating the Soft-Sphere  
Model for Low-Gravity Granular  
Environments  
Cecily Sunday, ISAE-SUPAERO, Space Systems for  
Planetary Applications, France |          | NA |
| 10:45am-11:00am | Networking/Coffee Break in Atrium | Machine Learning for  
Modeling and Control of  
Complex Flows  
Mike Graham, UW-Madison |
| 11:00am-11:45am | Sensor Simulation for  
Autonomous Vehicles and  
Robotics  
Asher Elmquist, UW-Madison |          | Human-Centered  
Optimization  
Brett Stewart, ExxonMobil |
| 11:45am-12:00pm | Overview of Master of  
Engineering Degree in Data  
Analytics  
Wayne Pferdehirt, UW-Madison | DAGMC User Stories:  
Successes and Challenges  
Speaker TBA |          |
| 12:00pm-12:45pm | Project Chrono  
Dr. Radu Serban, UW-Madison |          | Lunch Provided in Atrium |
| 12:45pm-2:00pm | Lunch Provided in Atrium |          |                        |
| 2:00pm-2:45pm | **MPC Plus AI: A Strategy of Both**  
Bob Turney, Engineering Fellow, Johnson Controls  
DeLuca Forum |          |                        |
| 2:45pm-3:30pm | **Learning Systems for Science**  
Ian Foster, Professor of Computer Science, University of Chicago  
DeLuca Forum |          |                        |
| 3:30pm-3:45pm | Break |          |                        |
| 3:45pm-4:30pm | **Computational Frontiers in Atomistic Simulation: Exascale and Machine Learning**  
Tim Germann, Theoretical and Applied Physics Division, Los Alamos National Lab  
DeLuca Forum |          |                        |
| 4:30pm-5:15pm | **Active Learning in the Overparameterized and Interpolating Regime**  
Rob Nowak, Professor of Electrical and Computer Engineering, UW-Madison  
DeLuca Forum |          |                        |
| 5:15pm-7:00pm | Reception, Eckrose Poster Session and Career Fair in Atrium  
Presentation of Eckrose Innovation Poster Award Winners  
Bar and refreshments provided |          |                        |
| 7:00pm-8:30pm | No-host Dinner at Steenbock’s, Discovery Building  
For faculty, staff and industry |          |                        |
## Wednesday, September 11

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<td>8:00am-8:30am</td>
<td>Simulation-Based Engineering Lab (SBEL): Research and Highlights&lt;br&gt;Dan Negrut, UW-Madison</td>
<td>NA</td>
<td>Space-Time Data Analysis&lt;br&gt;Mihai Anitescu, Argonne National Lab</td>
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<tr>
<td>8:30am-8:45am</td>
<td>Multi-Phase Modeling and Simulation&lt;br&gt;Lijing Yang, PhD Student, UW-Madison</td>
<td>NA</td>
<td>Machine Learning in Molecular Dynamics Simulations&lt;br&gt;Reid Van Lehn, UW-Madison</td>
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<td>8:45am-9:00am</td>
<td>Chrono::Granular&lt;br&gt;Nicholas Olsen, PhD Student, UW-Madison</td>
<td>NA</td>
<td>NA</td>
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<td>9:00am-9:15am</td>
<td>Large-Step Integration for DEM Simulation&lt;br&gt;Luning Fang, SBEL PhD Student, UW-Madison</td>
<td>Understanding DAGMC User Workflow&lt;br&gt;Speaker TBA</td>
<td>Machine Learning Algorithms for Sensor Design&lt;br&gt;Alexander Smith, UW-Madison</td>
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<td>9:15am-9:45am</td>
<td>SAE Autonomous EV Project&lt;br&gt;Aaron Young, Undergraduate Student, UW-Madison</td>
<td>NA</td>
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<td>10:00am-10:30am</td>
<td>Project Chrono Highlights: IGA Beams, Interior Point Solver, and Deep Learning with TensorFlow&lt;br&gt;Simone Benatti, University of Parma, Italy</td>
<td>Understanding DAGMC User Workflow&lt;br&gt;Speaker TBA</td>
<td>Low-Rank System Identification from High-Dimensional Data&lt;br&gt;Sungho Shin, UW-Madison</td>
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<td>10:30am-11:00am</td>
<td>Fluid-Solid Interaction in Chrono&lt;br&gt;Milad Rakhsha, PhD Student, UW-Madison</td>
<td>NA</td>
<td>Optimization Methods for Real-Time Operations&lt;br&gt;Christos Maravelias, UW-Madison</td>
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<td>11:00am-11:30am</td>
<td>Flexible Body Dynamics in Chrono&lt;br&gt;Mike Taylor, PhD Student, UW-Madison</td>
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<td>A Three-Stage Solution Algorithm for Chemical Production Scheduling&lt;br&gt;Ho Jae Lee, UW-Madison</td>
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<td>11:30am-12:00pm</td>
<td>Trends in Hardware for Engineering Computing Industry; Overview of Supercomputer Euler&lt;br&gt;Colin Vanden Heuvel, Sysadmin, Euler Supercomputer, UW-Madison</td>
<td>DAGMC Community Development and Planning&lt;br&gt;Speaker TBA</td>
<td>Machine Learning in Materials Science&lt;br&gt;Dane Morgan, UW-Madison</td>
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<td>12:00pm-1:00pm</td>
<td>Lunch Provided in Atrium</td>
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TUTORIALS

Tutorial fees are included in the registration fee. Any registered participant can attend any of the tutorials.

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<th>TIME</th>
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<th>SPEAKER</th>
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<tr>
<td>1:00pm Wednesday, September 11 through Friday, September 13</td>
<td>Project Chrono Tutorial</td>
<td>Radu Serban, Simone Benatti, Dan Negrut</td>
<td>TBA</td>
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<tr>
<td>1:00pm Wednesday, September 11 through Thursday, September 12</td>
<td>Statistics: From Data to Models to Decision-Making</td>
<td>Professor Victor Zavala, UW-Madison</td>
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<td>1:00pm-3:00pm Wednesday, September 11</td>
<td>DAGMC Developers Tutorial/Hackathon and User Tutorials</td>
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