# INVITED SESSION SUMMARY

<table>
<thead>
<tr>
<th>Title of Session:</th>
<th>Immunity-Based Systems: Resilience with AI</th>
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<td><strong>Name, Title and Affiliation of Chair:</strong></td>
<td>Prof. Dr. Yoshiteru Ishida, Toyohashi University of Technology  &lt;br&gt; Prof. Dr. Takeshi Okamoto, Kanagawa Institute of Technology, Japan  &lt;br&gt; Associate Prof. Dr. Yuji Watanabe, Nagoya City University, Japan</td>
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| **Details of Session (including aim and scope):** | Immunity-based Systems (or Artificial Immune Systems) have been attracting a broad attention as an alternative avenue to build intelligent and life-like systems. Systems based on and inspired from the immune system indicate not only tolerant to noise by autonomous and distributed agents, but adaptive to dynamically changing environment. As a specific topic, we also focus on the application to resilient computing that can reduce or prevent damages in disaster situation, and the systems that utilize IoT and/or big data. Further, Science and Engineering related to collective intelligence such as formation robots and satellites are also called for. This session calls for papers related to Immuo-engineering, Immuno-computing and Immuno-informatics. Specific topics of interest include but not limited to:  
- **Immuno-design**  
  e.g. Designing Resilient Systems, Matching Based Design  
- **Immuno-modeling**  
  e.g. Game theoretic approach, Cellular Automata, Asymmetric Interaction  
- **Immuno-engineering**  
  e.g. Signal profiling, Sensor Systems, Applications to the Environmental Problems, Robust and adaptive design; Self-diagnosis, self-maintenance and self-organization; Security of information network  
- **Immuno Intelligence, Bio Intelligence and other Natural Intelligence**  
  e.g. Artificial Intelligence and Natural Intelligence; Specific feature of Immuno Intelligence; Comparison of Immuno Intelligence to other Natural Intelligences; Bio Intelligence and Physical Intelligence; Degeneracy in Bio Intelligence and Physical Intelligence  
- **Immuno-informatics**  
  e.g. Analysis and simulation of the immune system as a Complex System; Application to monitoring the immune system; Application to medication  
- **Immuno-computing**  
  e.g. Computational approach to the Immunity-Based Systems; Learning and adaptive algorithms; Artificial Life; Multi-agent systems  
- **Disaster reduction, risk management and environment monitoring by Immunity-based Systems**  
- **AI city**  
  e.g. Information and response system for urban disaster, sustainable disaster risk prevention and daily benefit of satellites |
| **Main Contributing Researchers / Research Centres (tentative, if known at this stage):** | Prof. Dr. Yoshiteru Ishida (TUT, Japan)  <br> Prof. Dr. Takeshi Okamoto (KAIT, Japan)  <br> Associate Prof. Dr. Yuji Watanabe (NCU, Japan) |
| **Website URL of Call for Papers (if any):** | TBA |
| **Email & Contact Details:** | ishida@sys.cs.tut.ac.jp |