

	<p>■ <b>Contact information</b></p> <p>Professor : Email: <a href="mailto:ycsung@kaist.ac.kr">ycsung@kaist.ac.kr</a> TEL : 042-350-3484</p> <p>Lab. : <a href="mailto:sungho.choi@kaist.ac.kr">sungho.choi@kaist.ac.kr</a> TEL : 042-350-5484</p> <p>Website : <a href="https://sisrel.kaist.ac.kr">https://sisrel.kaist.ac.kr</a></p>
<p>■ <b>Current state of the Lab. (in 2025 Spring Semester)</b></p> <p>Postdoctoral Fellows : 1      PhD Students: 10      Master's Student: 3</p>	
<p>■ <b>Research Areas</b></p> <p>▷ <b>Reinforcement Learning</b></p> <p>Statistical inference and machine learning are basic tools for making decision or prediction based on incomplete data. This field has been an important branch in systems area and has gained a recent interest in the era of big data and artificial intelligence. In this field, SISReL is investigating new possibilities and invention of efficient inference and machine learning algorithms based on sparsity, information geometry, statistical methods, and optimization tools. Currently, SISReL is focusing on reinforcement learning, which will be a major tool for AI robots, smart cities and autonomous vehicle, from various research perspectives such as</p> <ul style="list-style-type: none"> <li>Multi-agent reinforcement learning</li> <li>Meta and multi-task reinforcement learning</li> <li>Multi-modal reinforcement learning</li> <li>Multi-objective reinforcement learning</li> <li>LLM Agents: RL for large language models - Making LLMs task solvers via RL</li> <li>Intrinsic reward design for sparse-reward reinforcement learning</li> <li>Partially-observable Markov decision processes (POMDP)</li> <li>Offline reinforcement learning</li> <li>Imitation learning</li> <li>Domain adaptation</li> <li>Improved value estimation</li> <li>Enhancing exploration</li> <li>Applications to communications and control</li> </ul>	
<p>■ <b>Recommended courses &amp; Career after graduation</b></p> <p>We recommend interested students to take basic courses in mathematics such as <i>Analysis</i>, <i>Linear Algebra</i>, <i>Optimization Techniques</i>, and <i>Probability and Statistics</i>, and <i>machine learning related courses</i> such as Big Data and Reinforcement Learning. SISReL graduates are playing active roles in research and development activities as professors in academia, as researchers in national research institutes such as ETRI, ADD, NSRI, or as researchers in industry.</p>	
<p>■ <b>Introduction to the Lab.</b></p> <p>The Smart Information Systems Research Lab. (SISReL) is a part of the School of Electrical Engineering and Graduate School of AI at KAIST, and headed by Professor Youngchul Sung. The research of SISReL focuses on signal processing, statistical inference, machine learning, reinforcement learning, and communication, with applications to internet-of-things, smart machine intelligence systems, and next generation communication systems.</p>	
<p>■ <b>Introduction to other activities besides research</b></p> <p>We have a lab seminar to learn various basic theories every week. In addition, we exercise together for harmony and health.</p>	<p>■ <b>Recent research achievements ('23~'25)</b></p> <p>▷ Published <b>15 papers &amp; 5 workshop papers</b> in the <b>top AI/ML conferences</b> (NeurIPS, ICML, ICLR, AAAI, AAMAS, etc.)</p> <p>▷ Published <b>3 papers</b> in SCI journals</p>