



# HANYANG UNIVERSITY

## 2019 HISS Research Project (A bioinspired deformable ionic skin (i-skin) for user-interactive tactile sensing)

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Laboratory Research Center Information	
Topics	A bioinspired deformable ionic skin (i-skin) for user-interactive tactile sensing
Activities	<ul style="list-style-type: none"> <li>- Deformable material design using a bioinspired approach</li> <li>- Characterization of i-skin thin film via X-ray diffraction, FT-IR, UV-vis-NIR, AFM, etc.</li> <li>- Fabrication of i-skin devices and tactile sensing evaluation</li> <li>- Design of skin-attachable tactile sensing devices</li> </ul>
Achievement	<ul style="list-style-type: none"> <li>- Proposal for government project</li> <li>- SCI international paper (draft version will be required.)</li> <li>- Patent</li> </ul>

Pre-requisite & Eligibility	
Academic Background	Electro-chemistry, semiconductor theory, polymer science (chemistry, physics, rheology)
Relevant Experience	
Language	English (speaking and writing)

Objective & Description:	<ul style="list-style-type: none"> <li>- To design highly deformable, sensitive, bioinspired ionic skin (i-skin) devices and demonstrate a skin-attachable i-skin patch showing user-interactive tactile sensing</li> <li>- To fabricate highly deformable polymer or hybrid-type electrolyte for i-skin devices</li> </ul>		
Project Duration	6 weeks	Project Hours:	minimum 80 hours

	Weekly Topic & Activities	Student Assignment
Schedule:	<ul style="list-style-type: none"> <li>- Introduction and lab tour</li> </ul>	
	Week 1 <ul style="list-style-type: none"> <li>- Overview (i-skin technology)</li> <li>- Paper search</li> </ul>	

### Hanyang International Summer School

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Week 2	<ul style="list-style-type: none"> <li>- System design (Type of materials, devices, array)</li> <li>- Facility training</li> </ul>	
Week 3	<ul style="list-style-type: none"> <li>- Ink formulation and preparation of i-skin film based on ionic solution</li> <li>- Characterization of i-skin film with versatile X-ray, optical, electronic facilities</li> </ul>	
Week 4	<ul style="list-style-type: none"> <li>- Fabrication of i-skin devices and evaluation of i-skin with electronic and electrochemical analysis</li> <li>- Data processing and discussion</li> <li>- Presentation</li> <li>- Preparation of patent</li> </ul>	20 min. oral presentation + 20 min. Q&A
Week 5	<ul style="list-style-type: none"> <li>- Demonstration of skin-attachable i-skin device array</li> <li>- Optimization and data processing</li> <li>- Preparation and writing of SCI paper (draft version)</li> </ul>	
Week 6	<ul style="list-style-type: none"> <li>- Preparation and writing of SCI paper (draft version)</li> <li>- Presentation</li> </ul>	<ul style="list-style-type: none"> <li>- 6 pages SCI paper draft version)</li> <li>- 10 pages final report</li> <li>- 20 min. oral presentation + 20 min Q&amp;A</li> </ul>

Evaluation	Attendance	Weekly Report	Final Presentation or Paper
	30%	40%	30%