

 <p>Laboratory for Information Transmission</p>	 <p>과학기술정보통신부 Ministry of Science and ICT</p> <p>Supported by the Ministry of Science and ICT Beyond 5G mobile communication research Lab.</p>
<p>■ Current members of the Lab. (in 2018 Fall Semester) 11 PhD Students, 4 master's Students</p>	<p>■ Contact information Professor: Room 715, IT Convergence building (N1), TEL: 042-350-7420 Lab.: Room 718, IT Convergence building (N1), TEL: 042-350-7520, 6817 Website: http://lit.kaist.ac.kr</p>
<p>■ Research Areas</p> <p>In Laboratory for Information Transmission (LIT), we conduct researches on theoretical analysis and practical design of transmission technologies in modern wireless communication systems. Especially, extensive researches on performance analysis and development of 5G and beyond 5G mobile communication technologies are actively performed. Furthermore, LIT has been selected as the Research Laboratory of Beyond 5G (B5G) mobile communication supported by the Ministry of Science and ICT, and we aim to acquire original technologies for B5G communications. Detailed research topics are listed below.</p> <ul style="list-style-type: none"> - Massive MIMO Massive multiple input multiple output (MIMO) is a technology that increases the transmission speed and reliability of wireless communication by using several hundreds antennas in base stations. Our research topics are power-efficient and intelligent transmission/reception schemes of massive MIMO system. - Machine learning based wireless communication Adopting machine learning and deep learning in communication systems, we are solving problems that are not easy with conventional methods, or improving the performance. - Beamforming scheme at mmWave and terahertz band - Filter bank multi-carrier (FBMC) communication - Channel coding such as Low density parity check (LDPC), polar code - Small cell network with wireless backhaul - Simultaneous wireless information and power transmission (SWIPT) system <p>Currently, ongoing research projects include "Development of beyond 5G transformation technology using new resources", "Development of open 5G standard model", "Development of 200 Gbps MIMO RF front-end", "Simultaneous transmission of information and power"</p>	
<p>■ Recommended courses and career after graduation</p> <p>Recommended courses: Digital signal processing, Probability and random processes, Communication engineering</p> <p>Career after graduation: The LIT has produced 14 Ph.Ds and 32 Masters, and the alumni have been active in various fields in research institutes such as the Agency for Defense Development (ADD), Electronics and Telecommunications Research Institute (ETRI), companies, schools and government agencies.</p>	<p>■ Introduction to other activities besides research</p> <p>The LIT has two workshops in winter and summer every year, celebrates the birthdays of individual students and makes friendships among professor and students. The lab. members interact with alumni every year through homecoming day, and the alumni share their experiences in various cases such as careers and researches.</p>
<p>■ Introduction to the Lab.</p> <p>The LIT has a vision becoming world class communication laboratory. We aim to establish basic research and development of core technologies in information theory, signal processing and communication, and to perform researches for advanced theoretical topics as well as practical issues. By doing so, we obtain creative and practical skills necessary for the development of communications, and become high-quality engineer who will play a key role in the field of communications industry and academia.</p> <p>In order to achieve a comfortable and enjoyable research environment for students, we are helping to maximize individual passion and ability in a free and pleasant atmosphere based on mature individualism.</p>	
<p>■ Recent research achievements ('16~'18)</p> <p>Publications: 15 International Journals, 11 International Conferences</p> <p>Awards: Best paper award for KICS Fall 2017: "Performance Analysis on 5G New Radio (NR) Polar Codes, Paper award in the 24th Samsung Electronics Human Tech.: "Superposition Transmission of Uplink SCMA"</p>	