

<Professor Kyeongha Kwon>

<div>THE KWON GROUP</div>		■ Contact information		
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■ Current state of the Lab. (2025 Spring) PhD Student: 11 Master's Student: 10				
■ Research Areas				
▷ Battery Management System (BMS)				
<div><div>Maximize the remaining useful life (RUL) for entire multi-storage platform</div><div>Development of cell state prediction techniques with high stability</div><div>Ongoing research topics:<div><div>✓ EV/ESS battery management IC: Measurement & Power Control</div><div>✓ Advanced diagnosis device (e.g. EIS system) for safety</div><div>✓ Algorithm optimization for embedded system</div></div></div></div>				
▷ Digital Healthcare System				
<div><div>Real-time monitoring of physical condition using small, wireless and low-power devices</div><div>Flexible, skin-attachable systems to sense various biosignals</div><div>Ongoing research topics:<div><div>✓ Blood flow rate monitoring</div><div>✓ Skin impedance monitoring</div><div>✓ Capnography: sensing CO2 concentration</div><div>✓ Wireless power transfer for implanted cardiac stents</div></div></div></div>				
▷ High-Speed Transceivers				
<div><div>Signal distortion due to channel and other environmental causes, resulting erroneous data at receiver</div><div>Distortion compensation in transceiver ICs</div><div>Ongoing research topics:<div><div>✓ High-speed wireline interface (HBM, Chiplet, PIM)</div><div>✓ Dispersion compensation for optical communication</div><div>✓ Low power on-chip transceivers</div><div>✓ Mid-band PSRR enhanced NMOS LDO Regulator</div></div></div></div>				
■ Recommended courses & Career after graduation				
<div><div>Courses on circuits, signals and communications: EE201, EE304, EE372, EE403, EE202, EE303, EE321, etc. (More information on our website)</div><div>Potential career options after graduation include government-funded/private research institutes or companies related to IC design, medical devices, automobile, etc.</div></div>				
■ Introduction to the Lab.		<div><div>Lab members with friendly relationship</div><div>Group lunch/dinner and birthday celebrations</div><div>Regular participation in workshops and seminars</div></div>		
<div><div>Horizontal organizational structure and lively workplace atmosphere</div></div>				
■ Recent research achievements				
"ASIL-D and AEC-Q100 Grade 0 Compliant Automotive RC Oscillator with Farey Sequence-based Calibration," IEEE Custom Integrated Circuits Conference (CICC), 2024.				
"ASIL-D compliant Battery Monitoring IC with High Measurement Accuracy and Robust Communication," IEEE International Solid-State Circuits Conference (ISSCC) Digest of Technical Papers, 2023.				
"Soft, full Wheatstone bridge 3D pressure sensors for cardiovascular monitoring," nature partner journal (npj) Flexible Electronics (IF:12.018), Jan. 2024.				
"Battery-free, cardiovascular implant for wireless monitoring of arterial/ventricular pressure, flow rate and temperature in real-time fashion," Nature Biomedical Engineering (IF:29.234), April 2023.				