

Division of Electrical Engineering and Computer Science	Research field	Adaptive Systems	Lab. ID EC04
Laboratory web site	http://leo.ec.t.kanazawa-u.ac.jp/		
Research subjects			
This laboratory studies systems with learning capability such as adaptive filters and neural networks. Research topics includes their convergence analysies, their structure, learning algorithms, efficient implementation, and application to communications systems. Researches on speech and audio, such as music source separation and noise reduction, are actively studied.			
Master/Doctor course: Education policy, curriculum, typical activity in the laboratory			
Every student has his/her own independent research topic. Students take two seminars. One for presentation and duscussion on their research topics. In the other seminar, students study equipment usage, programming and technical writing.			
Daily life in the laboratory, etc.			
A personal working desk with a personal computer is available for every student. High-performance servers with parallel accelerator such as nVIDIA TESLA K20 and Intel Xeon Phi can be used for heavy simulations. File servers with automatic data back-up keeps your files safely. For speech/audio experiments, multi-channel recorders and hi-quarity audio playback systems are available.			
Message or comments by the laboratory faculty staffs			
We are looking for students who work actively in their research. Most master graduates take occupation as enterprise staffs or public servants.			
Recent Master theses in these 3 years (+ more if appropriate)			
year.month	Thesis title (including English translation of Japanese thesis title)		
2021.3	Improvements on JPEG XS for rigid endoscopic images		
2020.3	Adaptation control algorithm for stereophonic acoustic echo cancellation		
2019.3	Lossless image compression by using PixelCNN++		
2019.3	Adaptive Microphone Array with Sound Source Location by Using Kinect		
2018.3	Fuel gauge for Li-ion batteries using neural network		
2018.3	Feedforward/feedback-combined blind source separation		
2017.3	Performance Improvements of Brain Computer Interface Using Correlation Reduction between Channels		
2016.3	Data-Driven Update of Generalized Internal Model Controllers		
2016.3	Speech acquisition using microphone array and sensor information		
2016.3	Learning Algorithm for Stereophonic Acoustic Echo Canceller with Pre-Processing by Time-Varying Allpass Filters		
2016.3	Study on Data Driven Real-time Tuning of the Feedforward part in Two-Degree of Freedom Control System		
2015.3	Music Source Separation in Time-Frequency Domain by Using Lateral Excitation and Inhibition Neural Networks		
2014.3	Parallel simulation of neural networks using AMD Radeon Graphics Processor		
2014.3	Battery Fuel Gauge for Lithium-ion Battery Using Multiple Neural Networks		
2014.3	Learning Algorithm for Stereophonic Acoustic Echo Canceller		
2013.3	A Circuit Structure and A Learning Algorithm for by Presumption of A Mixed Process and An Inverse Matrix		
2013.3	Parallel Neural Network Based Brain Computer Interface by Using Orthogonal Components of Multi-Channel Brain Waves and Sampling at Irregular Intervals in Frequency Band		
2013.3	Fast Convergence Algorithm for Adaptive Filters Using Input-Signal Whitening		
2013.3	An Integrated System of Echo Canceller and Noise Canceller for Mobile Phones and Its Performance Analysis		
2013.3	Battery Life Estimation Based on Neural Networks - NN Synthesis and Quantization Error Analysis -		
2012.9	Anomaly Prediction in Network Traffic Using Neural Network		

Recent Doctoral theses in these 3 years (+ more if appropriate)	
year.month	Thesis title (including English translation of Japanese thesis title)
Laboratory mail address	Akihiro HIRANO <hirano *at* t.kanazawa-u.ac.jp>