

Division of Mechanical Science and Engineering	Research field	Biomedical Instrumentation and Control Engineering	Lab. ID
			MS24
Laboratory web site		http://www.me.se.kanazawa-u.ac.jp/biomed/	
Research subjects			
<p>Research objectives of our laboratory is to devise and develop new biomedical sensors, instrumentation, and control techniques using electronic and mechanical engineering technologies, and to analyse physiological functions, particularly on the adaptive and autonomous mechanisms of biological systems. The laboratory research emphases are non-invasive, ambulatory, home health monitoring, biomechatronics inclusive of human support system, and so on, contributing these results to the fields of basic and clinical medicine, rehabilitation engineering, and health care science.</p>			
Master/Doctor course: Education policy, curriculum, typical activity in the laboratory			
<p>Students select the primary staff or research group to work with, and collaborative research works are started. Doctor students are encouraged to go for outer activities, participating research workshops/meetings, international conferences.</p>			
Daily life in the laboratory, etc.			
<p>We, the students, mainly study hard for our research but we sometimes chat so the atmosphere of our laboratory is pretty friendly. At the time of the graduate school entrance examination, with the support of senior, you can wrestle study and reserch. In addition, there is a joint seminar with department of health science twice a year and you will have an opportunity to get an opinion about the reserch from the viewpoint of the different field.</p>			
Message or comments by the laboratory faculty staffs			
<p>Students, especially undergraduated students, should do your reasech as your life's work, proceeding along these lines:</p> <ol style="list-style-type: none"> 1. Adopt a definite purpose and create a definite plan for its attainment. 2. Take the initiative and begin putting your plan to action. 3. Back your initiative with belief in yourself and in your ability to successfully complete your plan. <p>—adapted from The Magic Ladder to Success, Napoleon Hill, 1930</p>			
Recent Master theses in these 3 years (+ more if appropriate)			
year.month	Thesis title (including English translation of Japanese thesis title)		
2017.3	Development of a noninvasive index for assessing individual physical fitness.		
2017.3	Development of acquiring method for three-dimensional shape information and elasticity distribution of musculo-skeletal strucutre using ultrasound images		
2017.3	Research on Body Posture Estimation Algorithm Using 9-axis sensor data		
2017.3	Development of a noninvasive in-ear blood pressure monitor system based on the volume oscillometric method.		
2017.3	Development of an optical system for monitoring urine components for home health care.		
2017.3	Development of a multi joint manipulator for laparoscopic surgery using magneto rheological		
2016.3	Development of multi-joint manipulator for laparoscopic surgery using magneto-rheological elastomer		
2016.3	A new non-invasive physical fitness index alternative to blood lactate threshold		
2016.3	Non-invasive measurement of deeper tissue oxygen consumption index based on radiative transfer		
2015.3	A basic study on development of simple assessment method of physical fitness using non-invasive impedance cardiography		
2015.3	Development of high sensitive photo-plethysmography for non-invasive blood components measurement: proposal of integrating sphere type light-concentrating device		
2015.3	Development of urine componets analyzing toilet system using near-infrared spectroscopy		
2015.3	Development of non-invasive beat-by-beat blood pressure and cardiac ouput measurent system		
2014.3	Development of optical urine componets analysing system for home-healthcare		
2014.3	Development of intravascular endscopy system for supporting off-pump surgery		
2014.3	Development of non-blood drawing calibration method for non-invasive transabdominal fetal pulse oximetry		
2013.3	Development of a fully automated bathtub ECG and respiration measurement system using capacity-coupled electrode		
2013.3	A basic study on measurement precision improvement on non-invasive optical blood glucose measurement method: pulse glucometry		
2013.3	Development of an automobile interior system for health screening: evaluation of health condition assessment system		
2013.3	Preliminary Study on development of non-invasive blood alcohol concentration measurement system: proposal of modified pulse alcometry		
2013.3	Development of non-invasive wearable beat-by-beat blood pressure and cardiac oupput measurement system		
2013.3	Development of optical urine componets analyzing ssysytem installed in toilet for home-healthcare		
2013.3	Development of endscopic intravascular visalization system for supporting off-pump surgery		
2012.9	Development of a wearable patient monitoring system for ECG, respiration, and mucus congestion detection		
Recent Doctoral theses in these 3 years (+ more if appropriate)			

year.month	Thesis title (including English translation of Japanese thesis title)
2014.3	Efficacy Evaluation for a Wearable Physical Activities Monitoring to Support Daily Activities in Stroke Patient
2014.3	A Basic Study on the Development of Ear-type Smart Monitor for Healthcare
2013.3	A biomedical engineering approach for the effects of 3-D video presentation with high-frame rates on human vision
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