CURRICULUM VITAE

***Name*: Hee Chan Kim**

Present Academic & Professional Appointments :

Professor	Department of Biomedical Engineering, College of Medicine, Seoul National University Department of Biomedical Engineering, Seoul National University Hospital
Director	Technology Licensing Office, Biomedical Research Institute, Seoul National University Hospital
Ex-President	The Korean Society of Medical and Biological Engineering
CEO	SNUH Venture Inc.
Past Director	- Institute of Medical & Biological Engineering, Medical Research Center, SeoulNational University - Headquarters of Research Administration & Coordination, Biomedical Research Institute, Seoul National University Hospital
Past Chairman	- Department of Biomedical Engineering, Seoul National University College of Medicine and Seoul National University Hospital - Interdisciplinary Program for Bioengineering, Graduate School, Seoul National University
Past Chief	Medical Device Evaluation Center, Biomedical Research Institute, Seoul National University Hospital
Past Chief	GLP Laboratory, Biomedical Research Institute, Seoul National University Hospital

Education & Career :

1978 – 1982	B.S.	Department of Electronics Engineering College of Engineering, Seoul National University
1982 – 1984	M.S.	Department of Electronics Engineering (Biomedical Engineering Major) College of Engineering, Seoul National University
1984 - 1989	Ph.D.	Department of Control & Instrumentation Engineering (Biomedical Engineering Major) College of Engineering, Seoul National University
1982 - 1989	Research Member	Department of Biomedical Engineering Seoul National University Hospital
1989 - 1991	Staff Engineer	Artificial Heart Research Laboratory University of Utah, Salt Lake City, Utah
1991 - 1993 1993 - 1998 1998 - 2004 2004-present	Instructor Assistant Professor Associate Professor Professor	Department of Biomedical Engineering Seoul National University Hospital and College of Medicine, Seoul National University
1993 -1994	Visiting Professor	Department of Pharmaceutics and Artificial Heart Research Laboratory University of Utah, Salt Lake City, Utah
2006-2016	Chairman	Department of Biomedical Engineering, Seoul National University Hospital and College of Medicine, Seoul National University

Membership :

The Korean Society of Medical & Biological Engineering

The Korean Institute of Electronics Engineering

The Institute of Electrical & Electronics Engineers (IEEE)

The Engineering in Medicine & Biology Society (EMBS)

American Society for Artificial Internal Organs (ASAIO)

Research Activities & Selected Publications :

1983-1989 : the Korean Artificial Heart

>Byoung G. Min, Hee C. Kim, Sang H. Lee, Jong W. Kim, Jin T. Kim, In Y. Kim, Sung W. Kim, Paul D. Diegel and Don B. Olsen, "A moving-actuator type electromechanical total artificial heart- part I:Linear type and mock circulation experiments," IEEE Trans. Biomedical Engineering, 37(12), pp. 1186-1194, 1990.

>Byoung G. Min, Hee C. Kim, Jin W. Choi, Gyu H. Ryu, Kyung P. Suh, Joon R. Rho, Hyuk, Ahn, Sung W. Kim, Paul D. Diegel and Don B. Olsen, "A moving-actuator type electromechanical total artificial heart- part II:Circular type and animal experiments," IEEE Trans. Biomedical Engineering, 37(12), pp. 1195-1120, 1990.

1989-1994 : Electrohydraulic Total Artificial Heart

>Hee Chan Kim, Pratap S. Khanwilkar, Gill B. Bearnson, and Don B. Olsen,"Development of a Microcontroller based Automatic Control System for the Electrohydraulic Total Artificial Heart," IEEE Transactions on Biomedical Engineering, Vol. 44, No. 1, pp. 77-89, Jan. 1997.

1993-1994 : Portable Drug Delivery System

>Hee Chan Kim, You Han Bae and Sung Wan Kim, "Innovative Ambulatory Drug Delivery System Using an Electrolytic Hydrogel Pump," IEEE Transactions on Biomedical Engineering, VOL. 46, NO.6, pp.663-669, JUNE 1999.

1995-1998 : Development and commercialization of the insulin pump system

http://www.sooil.com

1998-present : Continuous Glucose Monitoring System

>Ran-A Jeong, Jae Youn Hwang, Segyeong Joo, Taek Dong Chung, Sejin Park, Sun Kil Kang, Won-Yong Lee and Hee Chan Kim, In vivo calibration of the subcutaneous amperometric glucose sensors using a non-enzyme electrode, Biosensors & Bioelectronics 19(4), pp.313-319, 2003.

1998-present : Development & commercialzation of the Integrated Health Monitoring System for Tele/Ubiquitous Healthcare

>Duck Gun Park and Hee Chan Kim, Comparative study of telecommunication methods for emergency telemedicine, Journal of Telemedicine and Telecare, 9, pp.300-303, 2003.

>Jae Min Kang, Taiwoo Yoo, and Hee Chan Kim, “A Wrist-Worn Integrated Health Monitoring Instrument with a Tele-Reporting Device for Telemedicine and Telecare,” IEEE Transactions on Instrumentation and Measurement, Vol. 55, No. 5, pp.1655-1661, 2006.

>Jaemin Kang, Honggu Chun, Il Hyung Shin, Sang Do Shin, Gil Joon Suh and Hee Chan Kim, “Preliminary evaluation of the use of a CDMA-based emergency telemedicine system,” Journal of Telemedicine and Telecare, Vol.12, No.8: pp.422-427, 2006.

> Min Ji Kwak, Ji Man Kim, Il Hyung Shin, Sang Do Shin,Kyoung Jun Song, Gil Joon Suh and Hee Chan Kim, "Real-time medical control using a wireless audio-video transmission device in a pre-hospital emergency service in Korea", Journal of Telemedicine and Telecare Vol. 15, pp. 404–408, 2009.

> Jiwon Ryu, Man Seung Heo, Hee Chan Kim, "Development of a Portable Breast Self-Examination Device using Enhanced Tactile Feedback", Electronic Letters, Vol.46, No.25, p. 1651-1653, 2010.

http://www.elbio.com

2002-present : Nanotechnology-based nonenzymatic glucose sensor & single-cell investigation systems

>Sejin Park, Taek Dong Chung and Hee Chan Kim, "Nonenzymatic Glucose Detection Using Mesoporous Platinum", Analytical Chemistry, 75(13), pp.3046-3049, 2003.

>Hankil Boo, Ran-A Jeong, Sejin Park, Keun Soo Kim, Kay Hyeok An, Young Hee Lee, Ji Hyung Han, Hee Chan Kim, and Taek Dong Chung, "Electrochemical Nanoneedle Biosensor Based on Multiwall Carbon Nanotube", Analytical Chemistry 78, pp.617-620, 2006.

> Jongmin Noh, Sejin Park, Han Kil Boo, Hee Chan Kim, Taek Dong Chung, "Nanoporous Platinum Solid-State Reference Electrode with Layer-by-Layer Polyelectrolyte Junction for pH Sensing Chip", Lab on a Chip, 2010, (in press).

2004-present : New Technologies for uTAS

>Honggu Chun, Taek Dong Chung, and Hee Chan Kim, "Cytometry and Velocimetry on a Microfluidic Chip Using Polyelectrolytic Salt Bridges", Analytical Chemistry 77, pp.2490-2495, 2005

>Segyeong Joo, Taek Dong Chung, and Hee Chan Kim, "A rapid field-free electroosmotic micropump incorporating charged microchannel surfaces", Sensors and Actuators B-Chemical 123, pp.1161-1168 , 2007

> Kwang Bok Kim, Honggu Chun, Hee Chan Kim, and Taek Dong Chung, "Red Blood Cell Quantification Microfluidic Chip Using Polyelectrolytic Gel Electrodes", Electrophoresis, Vol. 30, Issue 9, pp.1-6, 2009

> Segyeong Joo, Kee Hyun Kim, Hee Chan Kim, and Taek Dong Chung, "A Portable Microfluidic Flow Cytometer based on Simultaneous Detection of Impedance and Fluorescence", Biosensors & Bioelectronics, Vol. 25, pp.1509-1515, 2010

J.I. Choi, J.H. Yoo, M.C. Lee, E.G. Kim, J.S. Lee, S.O. Lee, S.I. Joo, S.H. Song, E.C. Kim, J.C. Lee, H.C. Kim, Y.G. Jung, S.H. Kwon, "A rapid antimicrobial susceptibility test based on single-cell morphological analysis", Science Translational Medicine, vol.6, no.267, p.267ra174, Dec. 2014

2010-present : New Technologies for Mobile Healthcare

>K.J. Song, S.D. Shin, K.J. Hong, K.W. Cheon, I. Shin, S.W. Song, H.C. Kim, "Clinical applicability of real-time, prehospital image transmission for FAST (Focused Assessment with Sonography for Trauma)," Journal of Telemedicine and Telecare, vol.19, no.8, pp.450-455, Dec.2013

>S. Noh, C. Yoon, E. Hyun, H.N. Yoon, T.J. Chung, K.S. Park and H.C. Kim, "Ferroelectret film based patch-type sensor for continuous blood pressure monitoring", Electronics Letters, vol.50, no.3, pp.143-144, Jan. 2014

> Park, Jonghyun, Seungman Yang, Jangjay Sohn, Joonnyong Lee, Saram Lee, Yunseo Ku, and Hee Chan Kim. “Cuffless and Continuous Blood Pressure Monitoring Using a Single Chest-Worn Device.” IEEE Access 7 (2019): 135231-135246.

> Soon Bin Kwon, Jeong-Ho Park, Chiheon Kwon, Hyung Joong Kong, Jae Youn Hwang, and Hee Chan Kim. “An Energy-Efficient Algorithm for Classification of Fall Types Using a Wearable Sensor.” IEEE Access (2019).

2017-present : Medical AI System

>Jin Woo Choi, Yunseo Ku, Byeong Wook Yoo, Jung-Ah Kim, Dong Soon Lee, Young Jun Chai, Hyoun-Joong Kong, Hee Chan Kim, “White blood cell differential count of maturation stages in bone marrow smear using dual-stage convolutional neural networks”, PLoS ONE, 12(12):e0189259, December 2017.

> Joonnyong Lee, Sukkyu Sun, SeungMan Yang, JangJay Sohn, Jonghyun Park, Saram Lee, Hee Chan Kim, “Bidirectional Recurrent Auto-Encoder for Photoplethysmogram Denoising”, IEEE Journal of Biomedical and Health Informatics, December 5, 2018

> Kim Hyungjin, Lee Dongheon, Cho Woo Sang, Lee Jung Chan, Goo Jin Mo, Kim Hee Chan, Park Chang Min, “CT-based deep learning model to differentiate invasive pulmonary adenocarcinomas appearing as subsolid nodules among surgical candidates: comparison of the diagnostic performance with a size-based logistic model and radiologists.”, European Radiology, 2020, February 13

> Eun Hyo Jin*, Dongheon Lee*, Jung Ho Bae, Hae Yeon Kang, Min-Sun Kwak, Ji Yeon Seo, Jong In Yang, Sun Young Yang, Seon Hee Lim, Jeong Yoon Yim, Joo Hyun Lim, Goh Eun Chung, Su Jin Chung, Ji Min Choi, Yoo Min Han, Seung Joo Kang, Jooyoung Lee, Hee Chan Kim, Joo Sung Kim, “Improved Accuracy in Optical Diagnosis of Colorectal Polyps Using Convolutional Neural Networks with Visual Explanations”, Gastroenterology, 2020;158(8):2169-2179.

**Full list and copy of all publications can be accessed from my laboratory’s website.*

http://melab.snu.ac.kr