



Minseok KIM, Ph.D. (Dr. Eng.)

Associate Professor

Program: Electrical and Information Engineering

Area: Electrical and Electronic Engineering

Undergraduate: Dept. of Electrical & Electronic Eng.

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Professional Expertise

His research encompasses various topics of radio signal processing such as direction-of-arrival estimation, radio propagation analysis, wireless systems, cognitive/software defined radio technologies, wireless techniques for medical healthcare applications, and etc. He is currently working on the spatiotemporal channel measurement and characterization at higher frequency bands such as 11 GHz and 60 GHz for future super high bit-rate mobile communication systems.

Research Fields of Interest

- Radio Signal Processing
 - Antenna Array Signal Processing such as Direction of Arrival Estimation
 - Instrumental Signal Processing using Microwave
- Radio Propagation Channel Measurement, Simulation and Modeling
 - MIMO Channel Sounding
 - Spatiotemporal Radio Channel Modeling
- Wireless Systems
 - Digital Signal Processor Implementation on FPGAs
 - Digital Pre-distortion Calibration Techniques
 - MIMO System Evaluation
- Cognitive Radios (CR)/Software Defined Radio (SDR)
 - Spectrum Sensing using Cyclostationarity
 - Blind Modulation Classification
 - Digital RF
- Wireless Sensor Systems for Medical Healthcare Applications
 - Radio Channel Characterization of On-body and Off-body
 - Diversity and Relay Techniques

Education

2005: Ph.D. in Division of Electrical and Computer Engineering, Yokohama National University (YNU), Japan

2002: M.S. in Division of Electrical and Computer Engineering, Yokohama National University (YNU), Japan

1999: B.S. in Department of Electrical Engineering, Hanyang University, Seoul, Korea

Professional Societies and Activities

1. Member of Technical Committees of Smart Radio (SR, 2007~2012), Healthcare Medical Information Communication Technology (MICT, 2009~present), and Microwave (MW, 2012~present)
2. Secretary of Technical Committee of Healthcare Medical ICT (MICT), IEICE

Communication society (2012.4 ~2014.3)

3. Member of IEICE and IEEE

Awards

1. Telecommunications System Technology Award of the Telecommunications Advancement Foundation (TAF), Mar. 2014.
2. Second prize in Smart Radio Challenge of Wireless Innovation Forum (Tokyo Tech Smart Radio Challenge Team), Apr. 2010.
3. Young Researcher's Encouragement Award of IEEE VTS Japan chapter, Oct. 2003.

Major Publications

Papers

- [1] M. Kim, Y. Konishi, Y. Chang, and J. Takada, "Large Scale Parameters and Double-Directional Characterization of Indoor Wideband Radio Multipath Channels at 11 GHz," *IEEE Trans. Antennas Propag.*, Vol.62, No.1, Jan. 2014.
- [2] A. Haniz, M. Kim, Md. A. Rahman, and J. Takada, "Spectral Correlation Based Blind Automatic Modulation Classification using Symbol Rate Estimation," *IEICE Trans. Commun.*, Vol. E96-B, No.6, May 2013.
- [3] Md. A. Rahman, A. Haniz, M. Kim, and J. Takada, "Robustness in Supervised Learning based Blind Automatic Modulation Classification," *IEICE Trans. Commun.*, Vol. E96-B, No.4, Apr. 2013.
- [4] M. Kim, and A. Haniz, "GNU Radio Open Source Software Dened Radio Platform," *Journal of IEICE*, Vol.96, No.1, Jan. 2013.
- [5] M. Kim, Y. Maruichi, and J. Takada, "Parametric Method of Frequency-dependent I/Q Imbalance Compensation for Wideband Quadrature Modulator," *IEEE Trans. Microwave Theory Tech.*, Vol.61, No.1, Jan. 2013
- [6] M. Kim, J. Takada, and Y. Konishi, "Novel Scalable MIMO Channel Sounding Technique and Measurement Accuracy Evaluation with Transceiver Impairments," *IEEE Trans. Instrum. Meas.*, Vol.61, No.12, Dec. 2012 (SCI)
- [7] M. Kim, and J. Takada, "Characterization of Wireless On-Body Channel Under Specific Action Scenarios at Sub-GHz Bands," *IEEE Trans. Antennas Propag.*, Vol.60, No.11, Nov. 2012.
- [8] M. Kim, Y. Konishi, J. Takada, and B. Gao, "Automatic IQ Imbalance Compensation Technique for Quadrature Modulator by Single-Tone Testing," *IEICE Trans. Commun.*, Vol.E95-B, No.5, May 2012.
- [9] M. Kim, K. Po, and J. Takada, "Performance Enhancement of Multi-cyclic Detector for Cognitive Radios with OFDM Primary System," *IEICE Trans. Commun.*, Vol. E95-B, No.3, Mar. 2012.
- [10] T. Aoyagi, M. Kim, J. Takada, K. Hamaguchi, and R. Kohno, "Numerical Simulations for Wearable BAN Propagation Channel during Various Human Movements," *IEICE Trans. Commun.*, Vol. E94-B, No. 9, Sept. 2011.
- [11] B. Zhen, M. Kim, J. Takada, and R. Kohno, "Characterization and Modeling of Dynamic On-body Propagation at 4.5 GHz," *IEEE Antennas Wireless Propag. Lett.*, 2009.
- [12] M. Kim, and J. Takada, "Statistical Model of 4.5 GHz Narrowband On-Body Propagation Channel with Specific Actions," *IEEE Antennas Wireless Propag. Lett.*, 2009.
- [13] M. Kim, T. Moteki, K. Ichige, and H. Arai, "Efficient Heterodyne Digital Receiver with Direct RF-to-Digital Conversion for Software Defined Radio," *IEICE Trans. Fundamentals*, Vol. E92-A, No. 4, Apr. 2009.
- [14] M. Kim, J. Takada, T. Ando, and R. Soma, "Real-Time Propagation Measurement System and Scattering Object Identification by 3-D Visualization based on VRML for ETC System," *EURASIP J. Wireless Commun. Networking*, Vol. 2009, 2009.
- [15] H. Oba, M. Kim, R. Tamaki, and H. Arai, "Adaptive Impedance Matching System using FPGA Processor for Efficient Control Algorithm," *IEICE Trans. Electron.*, Vol. E91-C, No. 8, Aug. 2008.
- [16] M. Kim, and H. Arai, "Low-profile Loop-shaped Inverted-F Wire Antenna with Dual Mode Operation," *IEEE Antennas Wireless Propag. Lett.*, Vol. 7, 2008.
- [17] Y. Yokoyama, M. Kim, and H. Arai, "Resource and Performance Evaluations of Fixed Point QRD-RLS Systolic Array through FPGA implementation," *IEICE Trans. Commun.*, Vol. E91-B, No.4, Apr. 2008.
- [18] M. Kim, T. Fuji, T. Nakabayashi, and H. Arai, "Evaluation of Digital-to-RF Upconversion Transmitter Using Harmonic Images of DAC Output," *IEICE Trans. Commun.*, Vol. E91-B, No.4, Apr. 2008.
- [19] A. Nakajima, M. Kim, and H. Arai, "FPGA Implementation of MMSE Adaptive Array Antenna using RLS algorithm," *IEICE Trans. Commun. (Japanese Edition)*, Vol. J88-B, No.9, Sept. 2005.
- [20] M. Kim, A. Kiyono, K. Ichige, and H. Arai, "Experimental Study of Jitter Effect on Digital Downconversion Receiver with Undersampling Scheme," *IEICE Trans. Inform. Syst.*, Vol. E88-D, No.7, Jul. 2005.
- [21] M. Kim, K. Ichige, and H. Arai, "Implementation of FPGA based Fast Unitary MUSIC DOA Estimator," *IEICE Trans. Electron.*, Vol. E87-C, No. 9, Sept. 2004.
- [22] M. Kim, K. Ichige, and H. Arai, "Design of Jacobi EVD processor based on CORDIC for DOA estimation with MUSIC algorithm," *IEICE Trans. Commun.*, Vol. E85-B, No.12, Dec. 2002.