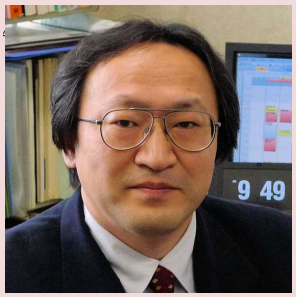

Hiroyoshi YAMADA, Dr. Eng.

Professor

Program: Electrical and Information Engineering

Area: Information Engineering

Undergraduate: Dept. of Information Engineering

http:// http://www.wave.ie.niigata-u.ac.jp/~yamada/welcome-e.html

Professional Expertise

His professional expertise encompasses array signal processing and antennas for mobile and microwave sensing applications, especially statistical signal processing for high-resolution Direction-of-Arrival (DOA) estimation and MIMO system. One of recent topics is micro-Doppler radar for human motion and location estimation. In addition, polarimetric and interferometric synthetic aperture radar (SAR) image analysis including SAR tomography is in his research fields. All kinds of array signal processing technologies associated with microwave are major topics in his laboratory.

Research Fields of Interest

Array Signal Processing (DOA estimation, etc)

- ✓ High-resolution Direction-of-Arrival estimation (MUSIC, ESPRIT, SAGE, EM, etc.)
- ✓ Application of statistical signal processing techniques for high-resolution array
- ✓ Compressive Sensing
- ✓ Array calibration

Wireless Location Estimation

- ✓ Mobile terminal location estimation with an array in multipath indoor environment
- ✓ Application for home security system

Smart Antennas/MIMO Communication

- ✓ Massive MIMO
- ✓ Array optimization for MIMO
- ✓ Adaptive beamforming for smart antenna system

Radar Signal Processing

- ✓ Micro Doppler Radar for indoor human motion and location estimation
- ✓ MIMO Radar
- ✓ Automobile/Car-borne Radar
- ✓ Compressive Sensing for DOA estimation with array antenna

Polarimetic and Interferometic SAR

- ✓ Biomass (Forest/vegetation) analysis by using polarimetric and/or interferometric scattering characteristic
- ✓ Unsupervised target classification for POLSAR/POL-InSAR images
- ✓ Polarimetric SAR tomography

Education

1993: Doctoral Eng. degree in Electronic Engineering, Hokkaido University, Japan

1990: Master Eng. degree in Electronic Engineering, Hokkaido University, Japan

1988: B.S. in Electronic Engineering, Hokkaido University, Japan

Professional Societies and Activities

1. Member, IEEE
2. Senior member, The Institute of Electronics, Information and Communication Engineers (IEICE), Japan
3. Editor-in-Chief, IEICE Communications Express, 2014-Present
4. General Chair, 2014 IEEE International Workshop on Electromagnetics: Applications and Student Innovation Competition (iWEM2014)
5. Chair, IEEE AP-S Tokyo Chapter, 2013-2014
6. Technical Program Committee Chair, 2013 Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2013)
7. Editor, IEICE Trans on Communications, 2005-2007

Awards

1. Kiyasu Zen'iti Award of IEICE, 2010
2. Best Tutorial Paper Award of IEICE Communications Society, Japan, 2010.
3. Best Paper Award of IEICE, Japan, 2010.
4. Young Engineer Award of IEEE AP-S Tokyo Chapter, 1991
5. Young Engineer Award of IEICE, Japan, 1998

Major Publications

Papers

[1] Y. Cui, Y. Yamaguchi, H. Yamada, S. Park, "PolInSAR Coherence Region Modeling and Inversion: The Best Normal Matrix Approximation Solution, " IEEE Trans. Geoscience and Remote Sensing, vol.53, no.2, pp.1048-1060, Feb. 2015.

[2] T. Watanabe, H. Yamada, M. Arii, R. Sato, S. E. Park, Yoshio YAMAGUCHI, "Study on Moisture Effects on Polarimetric Radar Backscatter from Forested Terrain," IEICE Trans. Commun., VOL.E97-B, NO.10, pp.2074-2082 Oct. 2014.

[3] T. Terada, T. Nishimura, Y. Ogawa, T. Ohgane, H. Yamada, "DOA Estimation for Multi-Band Signal Sources Using Compressed Sensing Techniques with Khatri-Rao Processing," IEICE Trans. Commun., VOL.E97-B, NO.10, pp.2110-2117, Oct. 2014.

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[5] S. Shirai, H. Yamada, Y. Yamaguchi, "A Novel DOA Estimation Error Reduction Preprocessing Scheme of Correlated Waves for Khatri-Rao Product Extended-Array," IEICE Trans. Communications, Vol.E96-B, no.10, Oct. 2013.

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[7] K. Inomata, Y. Yamaguchi, H. Yamada, W. Tsujita, M. Shikai, K. Sumi, "Accuracy of 2-Dimensional Object Location Estimation using Leaky Coaxial Cables," IEEE Trans. Antennas and Propagat., vol.59, no.6, pp.2396-2403, June 2011.

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[11] Y. Yajima, Y. Yamaguchi, R. Sato, H. Yamada, W. -M. Boerner, "POLSAR image analysis of wetlands using a modified four-component scattering power decomposition," IEEE Trans. Geoscience Remote Sensing, vol.46, no.6, pp.1667-1673, June 2008

[12] J.Suzuki, Y.Shoji, H.Yamada, Y.Yamaguchi, M.Tanabe, "A simple method to stop an adaptive process for the multistage Wiener filter," IEICE Trans. Commun., vol.E91-B, no.5, pp.1581-1588, May 2008.

[13] H.Iura, H.Yamada, Y.Ogawa, Y.Yamaguchi, "Optimal Antenna Matching and Mutual Coupling Effect of Antenna Array in MIMO Receiver," IEICE Trans. Communications Vol.E90-B No.4 pp.960-967, Apr. 2007.

[14] H. Yamada, M. Morishita, Y. Yamaguchi, "A Simple Mutual Coupling Compensation Technique in Array of Single-Mode Elements by a Weighted Mutual Coupling Matrix Based on the Impedance Matrix," IEICE Trans on Communications, Vol.E90-B, No.9, pp.2288-2296, Sept. 2007.

[15] A. Hirata, E. Taillefer, H. Yamada, T. Ohira, "Handheld DOA Finder with Electronically Steerable Parasitic Array Radiator Using the Reactance-Domain MUSIC Algorithm," IET Proc. on Microwaves, Antennas & Propagation, vol.1, no.4, pp.815-821, Aug. 2007.

Book Chapters

[1] N. Goto, M. Nakagawa, K. Itoh, eds., Antennas & Radio Handbook: H. Yamada, Chapter 6.3, Ohmsha, 2006.