Kwang June Sohn

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Summary

Industry experience in wireless communication and consumer electronics
- Seven years professional work experience
- Hardware: circuit design/analysis, logic design using Verilog HDL, etc.
- Software/Firmware: strong programming skills in C and MATLAB
- Commercial product development: PCS handset, DVD player, and DVD recorder
- Planning and managing the development: WCDMA base station, handset, and Diagnosis Monitor (DM) tool for WCDMA
- Human resource department: planning web-based training course, and planning and coordinating Leadership course for Managers

Research experience on signal processing
- Multichannel adaptive signal detection, space-time adaptive processing (STAP), etc.
- Array signal processing, time series analysis, spectral analysis, etc.
- Channel estimation, multiuser code timing acquisition, etc.
- Two IEEE transactions papers to be published, and several conference papers

Superior written and oral communication skills
Highly motivated team player with a tendency for leadership when possible
Superior interpersonal and coordinating skills
- Digital signal processing, signal detection and estimation theory, modulation/demodulation
- Wireless communications such as IS-95, CDMA2000, WCDMA, OFDM, UWB, WLAN, etc
- Computer (microprocessor, DSP) architecture and its applications
- VLSI system design and CAD

Education

Doctor of Philosophy, Stevens Institute of Technology, Hoboken, NJ **Expected: May 2007**
Master of Engineering, Stevens Institute of Technology, Hoboken, NJ **Sep. 2003 ~ Jan. 2005**
Major: Electrical Engineering GPA: 3.929/4.0
Concentration: Signal processing, signal detection and estimation
Dissertation title: Parametric tests for multichannel adaptive signal detection
Advisor: Dr. Hongbin Li

Master of Science course, KAIST, Daejon, Korea **Mar. 1995 ~ Jun. 1997**
Major: Electrical Engineering GPA: 2.1/3.0
Concentration: VLSI systems design, DSP/microprocessor architecture

Bachelor of Engineering, Kyungpook National University, Daegu, Korea **Feb. 1995**
Major: Electronics Engineering GPA: 4.14/4.5
Concentration: System Engineering Class rank: 8/381

Skills

Programming languages: C/C++, MATLAB, Assembly, FORTRAN, PASCAL, etc.
Operating systems: MS Windows, UNIX (Solaris)
Hardware description languages: Verilog HDL, VHDL, AHDL
Documentation: MS Office, LaTeX

Experience

Stevens Institute of Technology, Hoboken, NJ **Jan. 2005 ~ present**
Research Assistant
Analysis of Parametric Adaptive Signal Detection with Applications to Radars and Hyperspectral Imaging (Jan. 2005 ~ present)
- Development and analysis of a multichannel parametric Rao detector
- Development and analysis of a multichannel parametric GLRT detector
- Development and analysis of recursive multichannel parametric detectors
- Performance analysis of multichannel parametric detectors with Measured Airborne Radar

Data (MCARM data)
Low-complexity multi-user timing acquisition for Ultra-wideband (UWB) communications
(Jun. 2004 ~ Dec. 2004)

Stevens Institute of Technology, Hoboken, NJ **Aug. 2004 ~ Dec. 2004**
Teaching Assistant
Created, organized, and maintained an ECE website that provides tutorials and information on tools and technologies of interest to ECE undergraduate students

KTF (Korea Telecom Freetel), Seoul, Korea **Oct. 1999 ~ Aug. 2003**
Manager, 3G Access Network Development Team **Jun. 2001 ~ Aug. 2003**
- Provided requirements and specifications for KTF WCDMA Access Networks, especially Node-B (Base Station) and Radio Access Network (RAN) management system
- Planned and executed benchmarking tests (BMT) to select suppliers for KTF WCDMA Access Networks
- Provided requirements and specifications for KTF Dual Band Dual Mode Mobile (DBDM) handset (CDMA2000 and WCDMA)
- Developed and tested roaming scenarios between WCDMA and CDMA2000
- Performed Interoperability and approval tests for WCDMA handsets
- Planned and performed the demonstration of video telephone using WCDMA handsets between Korea and Japan (KTICOM (now KTF) and J-phone) as a member of technical staffs
- Planned and directed the development of a DM (Diagnosis Monitor) tool for KTF WCDMA network engineering

Manager, Handset Development Team **Oct. 1999 ~ Jun. 2001**
Developed 4 commercial models of PCS (IS-95 and CDMA2000) handset for KTF
- Customized call processing task using C
- Programmed short message services (SMS) using C
- Programmed device drivers for EEPROM, Flash, etc. using C
- Developed an automation program for calibrating RF chain of the handsets using Visual C++
- Developed a download program/debugging interface using JTAG interface
- Programmed user interface(UI) task using C
- Technical support for mass production

LG Electronics, Seoul, Korea **Jan. 1997 ~ Oct. 1999**
Research Engineer, DVD team, Digital Media Lab. **Dec. 1997 ~ Oct. 1999**
Developed one model of DVD player and one prototype of DVD recorder using DVD-RAM
- Developed a program for focusing, tracking, sled servo of DVD player: coded by DSP Assembly, simulated by MATLAB
- Developed digital interface circuits using general CMOS logic chips and CPLDs
- Developed interface logic between ARM7 bus and PCI bus using FPGA and HDL
- Developed interface logics between ARM7 bus and ATAPI chip/SCSI chip using FPGA and HDL
- Programmed ATAPI and SCSI drivers for the DVD recorder using C

Learning Center, HR **Jan. 1997 ~ Dec. 1997**
- Planned the development of a web-based learning system
- Planned, coordinated and facilitated Champion Leader course for Managers

Korea Advanced Institute of Science and Technology (KAIST), Korea **Mar. 1995 ~ Dec. 1996**
Research Assistant, VLSI systems Lab.
- Troubleshoot Full custom clocking circuitry for K486 processor
- Developed integer unit and interface logic for general purpose DSP using Verilog HDL

Publications

1. Kwang June Sohn, Hongbin Li, and Braham Himed, "Parametric Rao test for multichannel adaptive signal detection," *IEEE Transactions on Aerospace and Electronic Systems*, to appear.
2. Kwang June Sohn, Hongbin Li, and Braham Himed, "Parametric GLRT for multichannel adaptive signal detection," *IEEE Transactions on Signal Processing*, to appear.

3. Kwang June Sohn, Hongbin Li, Braham Himed, and Joshua Markow, "Recursive parametric tests for multichannel adaptive signal detection," submitted to *IEEE transactions on antennas and propagation*, May 8, 2007
4. Kwang June Sohn, Hongbin Li, and Braham Himed, "Recursive parametric tests for multichannel adaptive signal detection," in *Proceedings of the 12th IEEE Digital Signal Processing Workshop (DSP'06)*, Grand Teton National Park, WY, September 24-27, 2006
5. Kwang June Sohn, Hongbin Li, and Braham Himed, "Parametric GLRT for multichannel adaptive signal detection," in *Proceedings of the 4th IEEE Workshop on Sensor Array and Multi-channel Processing (SAM'06)*, Waltham, MA, July 12-14, 2006
6. Kwang June Sohn, Hongbin Li, and Braham Himed, " Multichannel parametric Rao detector," in *Proceedings of the 2006 IEEE International Conference on Acoustic, Speech, and Signal Processing (ICASSP'06)*, Toulouse, France, May 14-19, 2006
7. Kwang June Sohn, Hongbin Li, and Braham Himed, "Amplitude estimation of multichannel signal in spatially and temporally correlated noise," in *Proceedings of the Progress in Electromagnetics Research Symposium (PIERS 2006)*, Cambridge, MA, March 26-29, 2006 (**invited**)
8. Hongbin Li, Kwang June Sohn, and Braham Himed, "The PAMF detector is a parametric Rao test," in *Proceedings of the 39th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 30 - November 2, 2005
9. Kwang June Sohn, Hongbin Li, Braham Himed, and Joshua Markow, "Multichannel parametric detectors for airborne radar applications," in *Proceedings of the 2007 International Waveform Diversity and Design Conference*, Pisa, Italy, June 4 – 6, 2007, to appear
10. Kwang June Sohn, Hongbin Li, Braham Himed, and Joshua Markow, "Parametric space-time adaptive detectors with applications with airborne radar," in *Proceedings of the 15th Annual Workshop on Adaptive Sensor Array Processing*, Lexington, MA, June 5 - 6, 2007, to appear
11. Kwang June Sohn, Hongbin Li, Braham Himed, and Joshua Markow, "Performance of multichannel parametric detectors with MCARM data," in *Proceedings of the 2007 International Conference on Radar Systems*, Edinburgh, UK, October 15 – 18, 2007, to appear

Activities/ Awards

President, Korean Graduate Students Association, Stevens Institute of Technology, 2006-2007
Outstanding Doctoral Dissertation Award, Stevens Institute of Technology, May 2007
Francis T. Boesch Award, Stevens Institute of Technology May 2007
Outstanding Research Assistant Award, Dept. of ECE, Stevens Institute of Technology, Dec. 2006
Korean-American Scientists and Engineers Association (KSEA), Student Member
KSEA Math and Science Olympiad (KSEA NY metro and NJ chapter), Science Committee member, 2005, 2006
Local Arrangement Committee member, 2006 US-Korea Conference on Science, Technology, and Entrepreneurship (UKC), Aug. 2006
IEEE, Student Member
Representative of EE master students, KAIST, Mar. 1995 - Dec. 1996
Government scholarship for graduate study, KAIST, Mar. 1995 – Feb. 1997
Kyungpook National University scholarship, Mar. 1991 – Feb. 1995

Reference

Available on request