

CURRICULUM VITAE

Youngjoong Joo
Assistant Professor

I. GENERAL INFORMATION

A. Personal Data:

Phone: (210) 458-6098 Fax: (210) 458-59471 E-mail: youngjoong.joo@utsa.edu

B. Education:

1999	Ph.D. in Electrical Engineering	Georgia Institute of Technology, Atlanta, GA
1990	M. S. in Electrical Engineering	Korea University, Seoul, South Korea
1988	B. S. in Electrical Engineering	Korea University, Seoul, South Korea

C. Academic Appointments (chronological with latest first):

08/08 – Present	Assistant Professor, Department of Electrical and Computer Engineering The University of Texas at San Antonio, San Antonio, TX
08/07 – 05/08	Assistant Professor Research, Department of Electrical Engineering Arizona State University, Tempe, AZ
01/01 – 08/07	Assistant Professor, Department of Electrical Engineering Arizona State University, Tempe, AZ
06/99 – 12/00	Research Engineer II Department of Electrical Engineering, Georgia Institute of Technology, Atlanta, GA

D. Other Employment:

06/95 – 06/99	Graduate Assistant Department of Electrical Engineering, Georgia Institute of Technology, Atlanta, GA
11/90 – 06/94	Company Commander Korean Air Force, Sungnam, South Korea
02/88 – 03/90	Graduate Assistant Department of Electrical Engineering, Korea University, South Korea

E. Consulting:

08/06 – 03/07	Cactus Custom Analog Design, Chandler, AZ Developed Electro-Cardiograph circuits.
05/05 – 08/05	Samsung –System LSI, Giheung, South Korea Developed CMOS Image Sensor for Automotive applications.

F. Certification and Licensure:

G. Honors and Awards

Feb 2005	IEEE Phoenix Section Annual Award for meritorious service to IEEE Waves and Devices
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II. TEACHING

A. Classroom/Laboratory:

<u>Date</u>	<u>Course</u>	<u>Level</u>
Fall 08'	Topics in Microelectronics: Analog Integrated Circuit Design	G
Spring 08'	Analog and Digital Circuits	U
Spring 08'	Digital Design Fundamentals	U
Fall 07'	Electronic Circuits II	U
Fall 07'	Advanced Analog Integrated Circuits	G
Spring 07'	Electronic Devices and Instrumentation	U
Fall 06'	Analog Integrated Circuits	U
Spring 06'	Electronic Devices and Instrumentation	U
Spring 06'	Electronic Devices and Instrumentation	U
Fall 05'	Advanced Analog Integrated Circuits	G
Spring 05'	Analog Integrated Circuits	U
Spring 05'	Electronic Devices and Instrumentation	U
Fall 04'	Advanced Analog Integrated Circuits	G
Spring 04'	Opto-optoelectronic circuits	G
Spring 04'	Electronic Devices and Instrumentation	U
Fall 03'	Advanced Analog Integrated Circuits	G
Spring 03'	Electronic Devices and Instrumentation	U
Fall 02'	Advanced Analog Integrated Circuits	G
Spring 02'	Electrical Network II	U
Fall 01'	Advanced Analog Integrated Circuits	G
Spring 01'	Electronic Devices and Instrumentation	U

Level: Undergraduate (U), Graduate (G)

B. Instructional Development:

1. Courses Developed (Course number, title, date)

EEE598G	"Opt-optoelectronic circuit design"	Spring, 2004
EE5293	"Topics in Microelectronics: Analog Integrated Circuit Design"	Fall, 2008

2. Media and Software Developed

C. Masters' Theses and Ph.D. Dissertations Directed

1. Masters

1. Ram Chidambaram, "Characterization of photodiodes for CMOS image sensors," May 04
2. Nitin Khanijau, "A robust and improved design of wide dynamic range floating point analog to digital converter," May 04
3. Sumit Vishwakarma, "A Novel design of ultra wideband CMOS low noise amplifier with wideband impedance," May 04
4. Hoon Hee Chung, "A new low noise CMOS logic circuits for system-on-chip applications," Dec 03
5. Jaehyuk Rhee, "A new wide dynamic range and signal-to-noise ration pixel parallel analog-to-digital converter for focal plane arrays," Dec. 02

2. Ph.D. Dissertation

- 1 Dongwon Park "Wide dynamic range and high SNR CMOS image sensors" May 08
- 2 Hyunseok Kim "Design of an UWB pulse generator" Dec 06
3. Jaehyuk Rhee "A new wide dynamic range ADC for Focal Plane Arrays" Dec 06

D. Membership on Graduate Committees

1. Masters

2. Ph.D. Dissertation

E. Postdoctoral Fellows Supervised

F. Undergraduate Students (Research) Supervised

1. Scott Sifferman, "Active Antenna for General Coverage Receiver," Dec. 04

III. RESEARCH

A. Bibliography:

1. Books/Book Chapters

1a. Books

1b. Book Chapters

2. Journal Papers (refereed full length)

2a. Published or In Press

1. J. Rhee, D. Park, Y. Joo, "Analysis and Design of a Robust Floating Point CMOS Image Sensor," IEEE Sensors Journal, In Press.
2. D. Park, J. Rhee, Y. Joo, "Wide Dynamic Range CMOS Image Sensor Using Self-Reset Technique," IEEE Electron Device Letters, vol. 28, Issue 10, pp.890-892, 2007.
3. J. Rhee, Y. Joo, "Dual Mode Wide Dynamic Range CMOS Active Pixel Sensor," IEE Electronics Letters, vol. 41, Issue 24, pp.1322-1323, 2005.
4. H. Kim, D. Park, Y. Joo, "All-digital low-power CMOS pulse generator for UWB system," IEE Electronics Letters, vol. 40, Issue 24, pp.1534 – 1535, 2004.
5. S. Jung, M. Brooke, N. Jokerst, J. Liu, Y. Joo, "Parasitic Modeling and Analysis for a 1 Gb/s CMOS Laser Driver" Trans. on Circuit and Systems - II, vol. 51, pp.517-522, 2004.
6. J. Rhee, Y. Joo, "Wide dynamic range CMOS image sensor with pixel level ADC", vol. 39, issue 4, pp. 360 –361, IEE Electronics Letters, 2003.
7. N. Jokerst, M. Brooke, S. Cho, S. Wilkinson, M. Vrazel, S. Fike, J. Tabler, Y. Joo, S. Seo, D. Wills, A. Brown, "The heterogeneous integration of optical interconnections into integrated microsystems "IEEE Journal on Selected Topics in Quantum Electronics, vol. 9, issue 2, pp.350 –360, 2003.
8. N. Jokerst, M. Brooke, J. Laskar, S. Wills, A. Brown, M. Vrazel, S. Jung, Y. Joo, J. Chang, "Microsystem optoelectronic integration for mixed multisignal systems," IEEE Journal on Selected Topics in Quantum Electronics, pp.1231-1239, vol. 6, Issue 6, 2000.
9. Y. Joo, J. Park, M. Thomas, K. Chung, M. Brooke, N. Jokerst, D. Wills, "Smart CMOS Focal Plane Arrays: A Si CMOS detector array and sigma delta analog to digital converter imaging system," IEEE Journal of Selected Topics in Quantum Electronics, vol. 5, no. 2, pp.296-305, 1999.
10. J. Bergman, J. Chang, Y. Joo, B. Martinpour, J. Laskar, N. Jokerst, M. Brooke, B. Brar, E. Beam III, "RTD/CMOS nanoelectronic circuits: Thin-film InP-Based resonant tunneling diodes integrated with CMOS circuits," IEEE Electron Device letters, vol. 20, no. 3, pp.119-122, 1999.

2b. Submitted/Under Preparation.

1. "Wide dynamic range and high SNR CMOS image sensors," IEEE Sensors Journal, Under preparation.
2. "CMOS Ultra-Wideband Transmitter with Bi-Phase Modulation," IEEE Microwave and wireless components letters, Under preparation.

3. Conference Papers

3a. Published or Accepted

1. D. Park, J. Rhee, Y. Joo, "Wide Dynamic Range and High SNR Self-Reset CMOS Image Sensor Using a Schmitt Trigger," The 7th IEEE Conference on Sensors, pp.294-296, 2008.

2. S. Chang, T. Merkin, S. Jung, J. Gao, Y. Joo, "A CMOS 5th Derivative Impulse Generator for an IR-UWB Transmitter," 49th IEEE Midwest Symposium on Circuits and Systems, Accepted, 2006.
3. V. Shenoy, S. Jung, J. Gao, and Y. Joo, "CMOS Optical Transimpedance Amplifier Design for PAM Application", IEEE IASTED, pp. 70-73, Nov., 2006.
4. T. Merkin, S. Jung, J. Gao, Y. Joo, "A CMOS Ultra-Wideband Differential Low Noise Amplifier", IEEE Asia-Pacific Microwave Conference (APMC), pp. 417-420, Dec., 2006.
5. H. Kim, Y. Joo, and S. Jung, "A Tunable CMOS UWB Pulse Generator," IEEE International Conference on Ultra-Wideband , pp. 109 – 112, 2006.
6. T. B. Merkin, S. Jung, S. Tjuatja, Y. Joo, D. S. Park, J-B Lee, "An Ultra-Wideband Low Noise Amplifier with Air-suspended RF MEMS Inductors," IEEE International Conference on Ultra-Wideband, pp.459 – 464, 2006.
7. D. Maxwell, S. Jung, H. Doh, J. Gao, Y. Joo, "A Two-Stage Cascode CMOS LNA for UWB Wireless System," 48th IEEE Midwest Symposium on Circuits and Systems, pp. 627 – 630, August 7-10, 2005.
8. H. Kim, Y. Joo, S. Jung, "Digitally Controllable Bi-Phase CMOS UWB Pulse Generator," IEEE International Conference on Ultra-Wideband, pp. 442-445, Sept. 5-8, 2005.
9. H. Kim, Y. Joo, "Fifth-Derivative Gaussian Pulse Generator for UWB System," IEEE Radio Frequency Integrated Circuit, pp. 671 – 674, Jun. 12-14, 2005.
10. H. Doh, Y. Jeong, S. Jung, Y. Joo, "Design of CMOS UWB Low Noise Amplifier with Cascode Feedback," 47th IEEE Midwest Symposium on Circuits and Systems, vol. 2, pp.II-641 -644, 2004.
11. S. Vishwakarma, S. Jung, Y. Joo, "Ultra Wideband CMOS Low Noise Amplifier with Active Input Matching," IEEE Conference on Ultra Wideband Systems and Technologies, pp 415 – 419, May. 2004.
12. D. Wang, C. Ha, C. B. Park, Y. Joo, "CMOS Focal-plane-array for Analysis of Enzymatic Reaction in System-on-chip Spectrophotometer," Proceedings of SPIE, pp.67-75, vol. 5301, Jan. 2004.
13. J. Rhee, D. Wang, N. J. Tao, Y. Joo, "CMOS image sensor array for surface plasmon resonance spectroscopy," Proceedings of SPIE, pp.34-41, vol. 5301, Jan. 2004.
14. H. Chung, Y. Joo, "Novel digital logic gate for high performance CMOS imaging system," Proceedings of SPIE, pp.294-302, vol. 5301, Jan. 2004.
15. H. Kim, D. Park, Y. Joo, "Design of CMOS Scholtz's Monocycle Pulse Generator," IEEE Conference on Ultra Wideband Systems and Technologies, pp.81-85, Nov. 16-19, 2003.
16. H. Chung, J. Rhee, Y. Joo, "A new low switching noise CMOS logic circuits for single-chip CMOS imaging system," IEEE International Conference on Sensors, pp.1136-1140, 2003.
17. J. Rhee, Y. Joo, "A New wide-dynamic-range ADC for FPA applications," Proceedings of the SPIE, vol. 4796, pp. 263-270, 2003.
18. D. Wang, C. Ha, C. B. Park, Y. Joo, "Spectrophotometer on a focal-plane-array chip for the high-throughput analysis of enzymatic reaction," IEEE LEOS, vol. 1, pp. 19 – 20, Oct. 26-30, 2003.
19. J. Rhee, Y. Joo, "A new wide dynamic range fixed point ADC for FPAs," 45th IEEE MWSCAS Conference, vol. II, pp. 243 -245, August 2002.
20. Y. Joo, K. Lee, S. Seo, N. Jokerst, M. Brooke, "A modulator design for smart pixel multispectral imaging arrays," IEEE Lasers and Electro-Optics Society 2000 13th Annual Meeting, vol. 1, pp. 171-172, 2000.
21. K. Lee, S. Seo, S. Huang, Y. Joo, W. Doolittle, S. Fike, N. Jokerst, M. Brooke, A. Brown, "Design of a smart pixel multispectral imaging array using 3D stacked thin film detectors on Si CMOS circuits," IEEE LEOS Summer Topical Meetings, pp. 157-158, 2000.
22. Y. Joo, M. Brooke, N. Jokerst, "Compact current input oversampling modulator design for a scalable high frame rate focal plane arrays," IEEE International Symposium on Circuits and Systems, vol. 5, pp.9-12, 2000.
23. M. Vrazel, J. Chang, M. Brooke, N. Jokerst, Y. Joo, L. Carastro, G. Dagnall, A. Brown, "Analysis of alignment tolerant hybrid optoelectronic receivers for high density interconnection substrates," IEEE Electronic Components & Technology Conference, pp. 223-230, 2000.
24. N. Jokerst, M. Brooke, J. Laskar, S. Wills, A. Brown, O. Vendier, S. Bond, J. Cross, M. Vrazel, M. Thomas, M. Lee, S. Jung, Y. Joo, J. Chang, "Smart photonics: Optoelectronics integrated onto Si CMOS circuits," IEEE Lasers and Electro-Optics Society 1999 12th Annual Meeting , vol. 2, pp. 423-424, 1999.

25. Y. Joo, S. Fike, M. Thomas, K. Chung, M. Brooke, N. Jokerst, D. Wills, "High speed, smart focal plane processing using integrated photodetectors and Si CMOS VLSI sigma delta analog to digital converters," IEEE LEOS Summer Tropical Meetings, pp. 55-56, 1998.
26. Y. Joo, S. Fike, K. S. Chung, M. Brooke, N. Jokerst, D. Wills, "Application of massively parallel processors to real time processing of high speed images," Proceedings of the Fifth International Conference on Massively Parallel Processing Using Optical Interconnections, pp. 96-100, 1997.
27. H. Cat, A. Gentile, J. Eble, M. Lee, O. Vendier, Y. Joo, D. Wills, M. Brooke, N. Jokerst A. Brown, "SIMPil: An OE integrated SIMD architecture for focal plane processing applications," Proceedings of the Fourth International Conference on Massively Parallel Processing Using Optical Interconnections, pp. 44-52, 1996.

3b. Submitted/Under Preparation

1. "Design and Analysis of a UWB Pulse Generator using Pulse Combination Method," 2009 IEEE International Conference on Ultra-Wideband, Under preparation.

4. *Book Reviews*

5. *Other Articles*

B. Lectures, Seminars

(Chronologically, NOT INCLUDING presentations given at conferences as shown in 3a)

1. *Scientific Lectures, Seminars*

- Feb. 2007 "CMOS Image Sensor Design," University of Texas at Arlington, TX
- Dec. 2006 "Advanced Analog Integrated Circuit," Changwon National University, South Korea
- July 2005 "Dynamic Range CMOS image sensor for automotive applications," Samsung System LSI, South Korea
- July 2004 "UWB Transceiver & CMOS Image Sensor Design," Samsung System LSI, South Korea
- July 2004 "UWB Transceiver Design," Korea University, South Korea
- July 2004 "A Wide Dynamic Range Fixed-Point ADC for FPA's," Korea Electronics Technology Institute, South Korea

2. *Other Lectures, Seminars, Briefings, Short courses*

C. Areas of Research Interest

Mixed-signal circuit, CMOS image sensor, RF circuit, and bio sensor circuit design

D. Research Support

1. *National/International*

Agency:
 Title:
 Peer Reviewed (Y/N)
 Date (start-end)
 Total amount:
 Role (Principal Investigator/Co-Investigator)

2. *State*

Agency: State of Arizona
 Title: A complete wireless communication system for the next generation information technology
 Peer Reviewed (Y/N): Y
 Date (start-end): 5/16/02-5/15/05
 Total amount: \$480,000

Role (Principal Investigator/Co-Investigator): Co-Investigator

3. Companies

Agency:

Title:

Peer Reviewed (Y/N)

Date (start-end)

Total amount:

Role (Principal Investigator/Co-Investigator)

4. Other including sub-contracts, internal UTSA funding through earmarks, institutional grants etc.

Agency: The Office of the Vice President for Research

Title: 3D stereo vision system on a chip

Peer Reviewed (Y/N): Y

Date (start-end): 11/21/08 – 08/31/09

Total amount: \$22,000

Role (Principal Investigator/Co-Investigator): PI

Agency: Consortium for Embedded & Internetworking Technologies

Title: CMOS Vision Sensor Design for Wireless Sensor Network Platform

Peer Reviewed (Y/N): Y

Date (start-end): 08/25/04 - 08/24/05

Total amount: \$65,920

Role (Principal Investigator/Co-Investigator): PI

Agency: Connection One

Title: On-chip active antennas for UWB

Peer Reviewed (Y/N): Y

Date (start-end): 8/01/03-8/31/04

Total amount: \$60,252

Role (Principal Investigator/Co-Investigator): Co-Investigator

Agency: Low Power Center

Title: Low power electronics research

Peer Reviewed (Y/N): N

Date (start-end): 1/16/03-1/31/04

Total amount: \$33,206

Role (Principal Investigator/Co-Investigator): PI

Agency: Arizona State University

Title: High speed & wide dynamic range CMOS vision sensor for automotive application

Peer Reviewed (Y/N): Y

Date (start-end): 1/16/03-1/31/04

Total amount: \$27,000

Role (Principal Investigator/Co-Investigator): PI

Agency: Connection One

Title: Design of an ultra-wide-band receiver with matching circuitry

Peer Reviewed (Y/N): Y

Date (start-end): 7/01/02-12/31/03

Total amount: \$33,000

Role (Principal Investigator/Co-Investigator): PI

5. Pending with funding agency

Agency: San Antonio Area Foundation
 Title: A single chip integral imaging stereo camera system for blind or visually impaired people
 Peer Reviewed (Y/N): Y
 Date (start-end): 06/01/09 – 05/31/10
 Total amount: \$32,400
 Role (Principal Investigator/Co-Investigator): PI

IV. SERVICE

A. Professional Activities:

1. Current Professional and Scientific Organizations/Societies If election/nomination required then mark with *

Years (from-to)	Name of Organization
1995-Present	Institute of Electrical and Electronics Engineers (IEEE)
2002-Present	International Society for Optical Engineering (SPIE)

2. Past and Current Positions and/or Offices Held in Professional Organizations

Years (from-to)	Name of Organization	Position held
2006-08	IEEE Phoenix Waves and Devices Chapter	Treasury
2006-08	IEEE Phoenix Solid State Circuits Chapter	Treasure
2003-06	IEEE Phoenix Waves and Devices Chapter	Publicity
2001-02	IEEE Phoenix Waves and Devices Chapter	Secretary

3. Other Professional Activities (e.g., National and State Consultantships, Review Panels and Committees, Editorial Boards, Continuing Education Lectures Presented, etc.)

Editor/Editorial Board Member

2002-07 IEEE Communications Surveys and Tutorials, Editorial Board Member

Meeting/Symposium Organizer/Chairmanship

Meeting

Year

Role

Session Chair/Organizer

Year, Meeting, Session Name

2009	IEEE UWBST	Technical program committee member
2004	IEEE UWBST	Technical program committee member
2003	IEEE UWBST	Technical program committee member
2003	IEEE UWBST	Session chair
2002	IEEE ISCAS	Session chair

Reviewer for Journals

Name of Journal

IEEE Communications Surveys and Tutorials
 IEEE Journal of Solid-State Circuits
 IEEE Transactions on Circuit and Systems – I
 IEEE Transactions on Circuit and Systems – II
 IEE Electronic Letters

Review Panels (for grants)

Year, Agency, Panel Name

NSF – Ultra-High Capacity Optical Communications and Networking
NSF – Opto-electronics devices (Photodetectors)
NSF – Terahertz detectors and Imaging (SBIR)
NSF – Photodiodes, PMT, Photodetectors (SBIR)
NSF – Imaging (SBIR)

Continuing Education Seminars Given

Date, Seminar name

4. Community Service

Date, Service, Agency

B. Committees:

1. Department (specify if Chair)

Year, Committee

2008	ABET Senior Design Evaluation Committee
2005	Member of the Department Subcommittee for EEE302
2002	Member of the Microsystems search Committee

2. College of Engineering (specify if Chair)

Year, Committee

(Repeat as necessary)

3. University (specify if Chair)

Year, Committee

(Repeat as necessary)

4. Other

Year, Committee

(Repeat as necessary)

C. Administrative Responsibilities:

1. Department

Year, Title

(Repeat as necessary)

2. College

Year, Title

(Repeat as necessary)

3. University

Year, Title

(Repeat as necessary)

4. Staff Currently Supervised (not including students):

V. OTHER INFORMATION

A. Patents Pending/Issued:

- H. Kim and Y. Joo, "Digital Low-Power CMOS Pulse Generators for UWB Systems," 11/517,075, 2006

b. J. Rhee and Y. Joo, "Multimode CMOS image sensor," 11/608,539, 2006

B. Media Coverage

C. Other