Chung-An Shen

Assistant Professor

Department of Electronic and Computer Engineering (Computer Engineering Division)

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EDUCATION

- **The University of California,** Irvine, CA, USA   Sep 2007 – Mar 2012

  PhD in Electrical and Computer Engineering

  Dissertation: Tree Search Based MIMO Detectors: Algorithms and VLSI Architecture

  Advisor: Professor Ahmed M. Eltawil

- **The Ohio State University**, Columbus, OH, USA   Sep 2002 - Dec 2003

  Master of Science, Electrical Engineering

- **National Taiwan University of Sci. and Tech.**, Taipei, Taiwan   Sep 1998 - Jun 2000

  Bachelor of Science, Electrical Engineering

- **National Taipei Institute of Tech.**, Taipei, Taiwan   Sep 1993 - Jun 1998

  Diploma, Electrical Engineering

RESEARCH INTERESTS

- Algorithms and VLSI architectures for wireless communication and signal processing systems. Low power architecture and circuit designs. FPGA designs and applications. Embedded system designs and applications. Signal processing for communications.

JOURNAL PUBLICATIONS

- C. P. Sukumar, **C.-A. Shen**, and A. M. Eltawil, " Joint Detection and Decoding for MIMO Systems Using Convolutional Codes: Algorithm and VLSI Architecture," *IEEE Transactions on Circuits and Systems-I*, vol.59, no.9, pp 1919-1931, Sep. 2012.
- **C.-A. Shen**, A. M. Eltawil, S. Mondal, and K. N. Salama, "A Run-Time Configurable Soft/Hard Decision Tree Searching MIMO Decoder," *IEEE Transactions on VLSI Systems*, vol. 20, no. 8, pp. 1537-1541, Aug. 2012.
- S. Mondal, A. M. Eltawil, **C.-A. Shen**, and K. N. Salama, "Design and Implementation of a Sort Free K-Best Sphere Decoder," *IEEE Transactions on VLSI Systems, vol. 18, no. 10, pp. 1497-1501, Oct. 2010*.
- **C.-A. Shen** and A. M. Eltawil, " A Radius Adaptive K-Best Decoder with Early Termination: Algorithm and VLSI Architecture," *IEEE Transaction on Circuits and Systems-I*, vol. 57, no. 9, pp. 2476-2486, Sep. 2010.
- **C.-A. Shen**, K. N. Salama, and A. M. Eltawil, " Evaluation Framework for K-Best Sphere Decoders," *Journal of Circuits, Systems, and Computers*, vol. 19, no. 5, pp. 975-995, Aug. 2010.

CONFERENCE PUBLICATIONS

- M. K. Khairy, **C.-A. Shen**, A. M. Eltawil, and F. Kurdahi, " Error Resilient   MIMO   Detector   for Memory-Dominated Wireless Communication Systems," to   appear in IEEE Global Communications Conference (Globecom), Dec. 2012.
- **C.-A. Shen**, A. M. Eltawil, S. Mondal, and K. N. Salama, " A Best-First Tree-Searching Approach for ML Decoding in MIMO System," in proceedings of *IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 3533-3536, 2010.
- **C.-A. Shen** and A. M. Eltawil, "An Adaptive Reduced Complexity K-Best Decoding Algorithm with Early

Termination," *in proceedings of IEEE Consumer Communications and Networking Conference(CCNC), pp. 1-5, 2010*.

INDUSTRY EXPERIENCES

- **Senior Engineer**, Qualcomm Inc., San Diego, CA, USA   Apr 2012 – Jul 2012
  - Wireless modem firmware team for the TD-SCDMA system

- **Research Assistant**, UC Irvine, CA, USA   Apr 2008 – Mar 2012
  - Investigate efficient algorithms and VLSI architectures for wireless communication systems

- **Intern Engineer, Mindspeed Technologies**, Newport Beach, CA, USA   May 2011 – Sep 2011
  - Verification of UMTS Rake receiver on FPGA platform
  - Firmware/Driver development for the Rake receiver based on the ARM processor

- **DSP Engineer / Technical Training Instructor, Texas Instruments**, Taipei, Taiwan   Apr 2004 - Aug 2007
  - Conduct technical training workshops covering system design using TI DSP
  - Technical supports to the designs in using TI DSP

TEACHING EXPERIENCES

- **Instructor, NTUST**
  - FPGA System Design   Fall 2012

- **Teaching Assistant, UC Irvine**
  - EECS 141B – Digital Communication Systems   Apr 2010 – Jun 2010
  - EECS 189 – Senior Design Project (Robot Shooting Contest)   Sep 2011 – Mar 2012

- **Technical Training Instructor, Texas Instruments Asia**   Apr 2004 - Aug 2007
  - DSP System Designs and Integrations (DSP architectures, RTOS, Software optimizations)

ACTIVITIES

- Reviewing for IEEE journals and conferences
  - IEEE Transaction on TCAS-I, TCAS-II, 2010, 2011
  - IEEE Transaction on VLSI systems, 2011
  - IEEE International Conference on Electronics, Circuits, and Systems (ICECS), 2011
  - IEEE Vehicular Technology Conference (VTC), 2011

- Talks and Presentations
  - Practical and efficient receiver architectures for MIMO Systems, co-presentation with Dr. Eltawil for *Mindspeed Technologies*, May 2011
  - The MIMO Decoder based on Tree Search Approaches: Algorithm and VLSI Architecture, *center for pervasive communications and computing (CPCC) seminar, UCI*, May 2010
  - The MIMO Decoder based on Tree-Search Algorithms, center for multimedia communications, *Rice University*, Mar 2010
  - An Adaptive Reduced Complexity K-Best Decoding Algorithm with Early Termination, *IEEE Consumer Communications and Networking Conference(CCNC)*