

# Ab Al-Hadi Ab Rahman

## PRESENT ADDRESS

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## PERMANENT ADDRESS

Lot 4164 Jalan Takwa  
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## EDUCATION

**École Polytechnique Fédérale de Lausanne**, Switzerland

*Doctor of Science* (Ph.D), Signal Processing, 2009 - present

**Universiti Teknologi Malaysia**, Skudai

*Master of Engineering* (M.Eng), Electronics and Telecommunications Engineering, 2007

**University of Wisconsin-Madison**, USA

*Bachelor of Science* (B.S), Computer Engineering, 2003

## PROFESSIONAL MEMBERSHIP

1. *Graduate Engineer*, Board of Engineering Malaysia, 2006 - present
2. *Student Member of IEEE*, 2002 - present
  - Member of Signal Processing Society*, 2009 - present
  - Member of Circuits and Systems Society*, 2009 - present

## CURRENT RESEARCH

Methodologies, tools, and techniques for efficient implementation of dataflow actors and networks on hardware systems, 2009 - present

- Automatic pipeline synthesis and optimization of CAL dataflow actors
- Optimization of FPGA-based signal processing systems by means of trace critical path
- Automatic buffer minimization and exploration for hardware-based dataflow programs
- Multi-clock assignment and optimization for dataflow programs
- Dataflow program analysis and optimization for MPEG-4 video decoder

## PREVIOUS RESEARCH

- Performance comparison of adaptive filter between Actel and Altera FPGA, 2008
- VLSI Implementaion of Adaptive Equalizer for ISI Cancellation, 2007
- Analysis of Device Variations on CMOS Operational Amplifiers, 2006
- VLSI Blocks Arrangement Using Genetic Algorithm, 2005
- Speed Estimation of Moving Objects Using Stereoscopic Vision, 2004

## COURSES TAUGHT

- Electronics
- Digial electronics

## LABS SUPERVISED

- Digital signal and image processing
- Analog and digital electronics
- Electronics workshop
- VLSI CAD
- Industrial electronics
- Microprocessor

## PUBLICATIONS

### REFEREED ARTICLES

- 1 A.A.-H Ab Rahman, A. Prihozhy, M. Mattavelli, "Pipeline synthesis and optimization of FPGA-based video processing applications with CAL", In EURASIP Journal on Image and Video Processing, Springer International Publishing AG, vol. 2011, pp. 1-28, 2011.

### CONFERENCE AND WORKSHOP PAPERS

- 2 A.A.-H. Ab Rahman, R. Thavot, M. Mattavelli, "methodologies for buffer minimization and throughput exploration of signal processing implementations obtained by dataflow programs hdl synthesis", In Signal Processing Systems (SiPS), 2012 IEEE Workshop on, pp. 186 -191, 2012. (*Submitted to SiPS'12*)
- 3 A.A.-H. Ab Rahman, R. Thavot, S. Casale-Brunet, E. Bezati, M. Mattavelli, "design space exploration strategies for fpga implementation of signal processing systems using cal dataflow program", In Design and Architectures for Signal and Image Processing (DASIP), 2012 Conference on, pp. 1 -8, 2012. (*Submitted to DASIP'12*)
- 4 A.A.-H. Ab Rahman, H. Amer, A. Prihozhy, C. Lucarz, M. Mattavelli, "Optimization methodologies for complex FPGA-based signal processing systems with CAL", In Design and Architectures for Signal and Image Processing (DASIP), 2011 Conference on, vol. , no. , pp. 1 -8, 2011.
- 5 H. Amer, A.A.-H. Ab Rahman, I. Amer, C. Lucarz, M. Mattavelli, "Methodology and technique to improve throughput of FPGA-based Cal dataflow programs: Case study of the RVC MPEG-4 SP Intra decoder", In Signal Processing Systems (SiPS), 2011 IEEE Workshop on, vol. , no. , pp. 186 -191, 2011.
- 6 A.A.-H. Ab Rahman, R. Thavot, M. Mattavelli, P. Faure, "Hardware and software synthesis of image filters from CAL dataflow specification", In Ph.D. Research in Microelectronics and Electronics (PRIME), 2010 Conference on, vol. , no. , pp. 1 -4, 2010.
- 7 R. Thavot, A.A.-H. Bin Ab Rahman, R. Mosqueron, M. Mattavelli, "Automatic mutli-connectivity interface generation for system designs based on a dataflow description", In Ph.D. Research in Microelectronics and Electronics (PRIME), 2010 Conference on, vol. , no. , pp. 1 -4, 2010.
- 8 A.A.H. Ab-Rahman, I. Kamisian, A.Z. Sha'ameri, "ASIC modeling and simulation of adaptive FIR filter", In Electronic Design, 2008. ICED 2008. International Conference on, pp. 1 -4, 2008.
- 9 A.A.-H. Ab Rahman, I. Kamisian, A.Z. Sha'ameri, "VLSI design techniques and strategies for implementing adaptive equalizer", In Microelectronics, 2008. ICM 2008. International Conference on, pp. 349 -352, 2008.
- 10 H. A. Rahim, A. A. Ab Rahman, R. B. Ahmad, A. S. Md Zain, M. I. Ahmad, W. N. F. Wan Ariffin, "Genetic algorithms for VLSI micro-cell layout area optimization based on binary tree", In Proceedings of the Fourth IASTED International Conference on Advances in Computer Science and Technology, ACTA Press, Anaheim, CA, USA, pp. 286-291, 2008.
- 11 A.A.H. Ab-Rahman, I. Kamisian, A.Z. Sha'ameri, "VLSI design and implementation of adaptive channel equalizer", In Computer and Communication Engineering, 2008. ICCCE 2008. International Conference on, pp. 1121 -1124, 2008.
- 12 H.A. Rahim, A.A.-H. Ab Rahman, G. Andaljayalakshmi, R.B. Ahmad, W.N.S. Firuz Wan Arrifin, "A genetic algorithm approach to VLSI macro cell non-slicing floorplans using binary tree", In Computer and Communication Engineering, 2008. ICCCE 2008. International Conference on, pp. 26 -31, 2008.
- 13 H.A. Rahim, A.A.A. Rahman, R.B. Ahmad, W.N.F. Ariffin, M.I. Ahmad, "The Performance Study of Two Genetic Algorithm Approaches for VLSI Macro-Cell Layout Area Optimization", In Modeling Simulation, 2008. AICMS 08. Second Asia International Conference on, pp. 207 -212, 2008.
- 14 A.A.H. Ab-Rahman, I. Kamisian, "Analysis on the Effects of MOSFET Threshold Voltage Mismatch in CMOS Operational Amplifiers for RF Applications", In RF and Microwave Conference, 2006. RFM 2006. International, pp. 192 -196, 2006.

- 15 U.U. Sheikh, A.A.H. Ab-Rahman, S.A.R. and Abu-Bakar, "High Performace Real- Time Vision Based Barcode Reader", In International Conference on Robotics, Vision, Information, and Signal Processing (ROVISP05), 2005.
- 16 A.A.H. Ab-Rahman, U.U. Sheikh, M.N. Maliki, R. Heriansyah, K. Singh, S.A.R. Abu-Bakar, "Vestro: Velocity estimation using stereoscopic vision", In Computers, Communications, Signal Processing with Special Track on Biomedical Engineering, 2005. CCSP 2005. 1st International Conference on, pp. 120 -124, 2005.
- 17 A.A.H. Ab-Rahman, U.U. Sheikh, S.A.R. Abu-Bakar, "Subpixel disparity for accurate stereoscopic depth x00026; velocity", In Computers, Communications, Signal Processing with Special Track on Biomedical Engineering, 2005. CCSP 2005. 1st International Conference on, pp. 107 -111, 2005.