Leili Baghaei Rad

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WORK EXPERIENCE

- **Algorithm/Applications Development Engineer, Research & Development, KLA-Tencor**
  - (Aug. 2010 – present) Conceive, implement and optimize advanced algorithms and software modules used in photomask/reticle inspection.

- **Advisor (COO, Co-founder and Technology advisor)**
  - (Aug. 2008– present) Helped various early stage ventures. Worked through developing their technology and defining their business model all the way to securing funding.

- **Research Assistant, Stanford University** (Sep. 2007 – Sep. 2010)
  - Research into algorithms to enable the modeling and 3D reconstruction of Integrated Circuits using X-Ray Diffraction Microscopy – Imaging of extended objects with nanometer precision was achieved.
  - Established a network of researchers from Stanford University, UCLA, Riken Research Institute, Japan and Berkeley National Lab for collaboration with support from industry leaders such as Applied Materials and Texas Instruments.

- **Research Assistant, Stanford University** (Sep. 2006 – Sep. 2007)
  - Development of computational Scanning Electron Microscopy to rapidly reconstruct 3D structures with nanometer resolution – **100 fold acceleration was achieved** compared to conventional methods.

- **Research Assistant, University of Idaho** (Dec. 2004 – June. 2006)
  - Design and implementation of multiple transmit and receive antennas to increase the communication capacity of an underwater communication system.

- **Design Engineer, Tait Electronics Ltd., NZ** (Nov. 2002 – Nov. 2004)
  - Investigated new ideas for future products. Major task was to design an analog filter to reduce the wide-band noise in a delta modulator.
  - Managed a group of three Engineers.

EDUCATION

- **Stanford University, CA.**
  Ph.D. in Electrical Engineering, Sep. 2010, GPA 4.08/4.00
- **University of Idaho, ID.**
  M.Sc. in Electrical Engineering, Jun. 2006, GPA 3.81/4.00
- **University of Canterbury, New Zealand.**
  B.E. (Hons) in Electrical Engineering, Dec. 2004

- **Awards**
  - 3rd place for the Stanford Entrepreneurship Challenge (2010).
  - Outstanding poster award, 2009 SSRL user meeting, Oct 2009.
  - New Zealand Federation of Graduate Women Fellowship (2009/2010)
  - RIKEN (natural sciences research institute), Research Fellowship for experimental work at Spring8, Japan (2009)
  - Applied Materials Fellowship (2008 and 2009)
  - Texas Instruments Fellowship (2008)
  - SPIE Scholarship (2008)
  - J.R. Templin Scholarship, New Zealand (2005 – 2006)
  - Rebecca Lynch Memorial Scholarship, New Zealand (2005)

PROFESSIONAL AFFILIATIONS

- Organizer "Industry-Academia Liaison" workshop, EIPBN 2011.
- Committee member, section head and session chair, EIPBN 2011.
- Reviewer Journal of Vacuum Science and Technology 2010 (reviewed 4 papers).
- Committee member, section head and session chair, EIPBN 2010.
- Reviewer Journal of Vacuum Science and Technology 2009 (reviewed 4 papers).
- Committee member, section head and session chair, EIPBN 2009 (invited speakers for Metrology session).
- Technical reviewer: EIPBN 2007–09 (reviewed more than 60 papers)
- Membership: IEEE, IEE, SPIE, WIE, Golden Key International Honor Society, Sigma Xi and NZFGW

CIVIC ACTIVITIES

- Member of the Board of Judicial Affairs, Stanford University (2009 - 2010)
- Member of the Judicial Panel Pool, Stanford University (2009 - 2010)
- Member of Women in Engineering (WIE) and Women in Science and Engineering (WISE),
- Stanford University. Actively participated in a mentoring program, Little Sister/Big Sister, by guiding two to three incoming female graduate students every year (2008 – currently).
- Committee member and vice-chair of the student branch of IEEE, University of Canterbury and University of Idaho (2002 – 2006)
- Committee member of Women in Engineering (University of Canterbury and University of Idaho), initiating school visits and science projects to promote engineering and science amongst high school girls.
- Volunteer Sir Edmund Hillary Trust (2000-currently).

PATENTS

- "Rapid Verification of Design Specification in Fabricated ICs", patent granted, Stanford Docket S07-290, patent application number: 20090297018.
- "Computational Scanning Electron Microscopy for 3D measurements", patent pending, Stanford Docket S08-195.

INVITED TALKS

- 11th Nov. 09: "Algorithmic Reconstruction in XRDM", Applied Materials (**Invited**)
- 8th May 2009: "X-ray Diffraction Microscopy", Applied Materials (**Invited**)
- 30th Jan. 2009: "Iterative phase recovery for IC inspection", UCLA (**Invited**)
- 18th September 2007: KLA Tencor, Computational SEM (**Invited**)

PUBLICATIONS

1. **Journal** – Leili Baghaei Rad, Bing Dai, Piero Pianetta, Fabian Pease, "Non-Destructive Detection of Deviation in Integrated Circuits", accepted for publication in Journal of Vacuum Science and Technology (Issue Nov/Dec 2010).
2. **Journal** – Leili Baghaei, Piero Pianetta, Fabian Pease, "Non-Destructive Reconstruction of Integrated Circuits", accepted for publication in American Institute of Physics Journal (Issue December 2010).
3. **Conference** - Leili Baghaei Rad, Bing Dai, Piero Pianetta, Fabian Pease, "Algorithmic Reconstruction Methods in Diffraction Microscopy using a Priori Information", EIPBN 2010, Anchorage, June 2010.
4. **Conference** - Ronnachai Jaroensri, Kanokwan Kulalert, Leili Baghaei Rad, Bing Dai, R. Fabian Pease, "Scaled-Up Optical Simulation of X-Ray Diffraction Microscopy" , EIPBN 2010, Anchorage, June 2010.
5. **Poster** - Leili Baghaei Rad, Piero Pianetta, Fabian Pease, "Algorithmic Reconstruction Methods in Diffraction Microscopy", XRDM 2010.
6. **Journal** - L. Baghaei Rad, P. Pianetta, Jianwei Miao and R. F. Pease, "Iterative Phase Recovery Using Wavelet Domain Constraints", Journal of Vacuum Science and Technology (Issue Nov/Dec 2009).
7. **Conference** - L. Baghaei Rad, P. Pianetta, Jianwei Miao and R. F. Pease, "Iterative Phase Recovery Using Wavelet Domain Constraints", EIPBN 2009, Marco Island, Florida, USA (May 26-29, 2009).
8. **Poster** - Bing Dai, Leili Baghaei Rad, Piero Pianetta, R. Fabian W. Pease, "Non-iterative Reconstruction for Buried Deviant Structure Detection in IC's using Coherent Hard X-ray Diffraction", EIPBN 2009, Marco Island, Florida, USA (May 26-29, 2009).
9. **Poster** - Leili Baghaei, Ali Rad, Bing Dai ,Fabian Pease , Piero Pianetta and John Miao, "Phase Recovery Using Wavelet Domain Constraints in X-ray Diffraction Microscopy", 2009 SSRL/LCLS User meeting, Stanford, October 18th 2009
10. **Poster** - Leili Baghaei, Fabian Pease , Piero Pianetta and John Miao, "Phase Recovery Using Wavelet Domain Constraints in", Gordon Center for Subsurface Sensing and Imaging Systems (Gordon-CenSSIS) Research and Industry Collaboration Conference October 27, 2009
11. **Journal** - L. Baghaei Rad, I. Downes, B. Dai, J. Ye, P. Pianetta, R. F. Pease, "X-ray diffraction microscopy: reconstruction with partial magnitude and spatial a priori information", Journal of Vacuum Science and Technology (Issue Nov/Dec 2008).

12. **Conference** - L. Baghaei Rad, I. Downes, B. Dai, J. Ye, P. Pianetta, R. F. Pease, "X-ray diffraction microscopy: reconstruction with partial magnitude and spatial a priori information", EIPBN 2008, Portland, Oregon, USA (May 27 – 30, 2008) .
13. **Journal** - L. Baghaei Rad, J. Ye, I. Downes, R. F. Pease, "Economic approximate models for back scattered electrons", Journal of Vacuum Science and Technology (Issue Nov/Dec 2007).
14. **Conference** - L. Baghaei Rad, J. Ye, I. Downes, R. F. Pease, "Computational, 3-D, Nanometer Scale Metrology", Proceedings of EIPBN 2007, Denver, Colorado, USA (May 29 - June 1).
15. **Conference** - L. Baghaei Rad, H. Feng, J. Ye, R. F. Pease, "Computational Scanning Microscopy", Proceedings of Frontiers of Characterization and Metrology for Nanoelectronics, Gaithersburg, MD, USA (March 27 – 29 2007)
16. **Conference** - I.G. Downes, L. Baghaei Rad, H.K. Aghajan, "Development of a mote for wireless image sensors", COGnitive Systems with Interactive Sensors Conference, Paris, France (15-17 Mar. 2006)
17. **Conference** - L. Baghaei Rad, R.B. Wells, I.G. Downes, M.J. Anderson, "Closely Spaced Hydrophones for underwater Acoustic Communication", Proceedings of the 12th Annual Symposium of the IEEE/CVT, Enschede, The Netherlands (3 Nov. 2005)
18. **Conference** - L. Baghaei Rad, L. Garth, I.R. Scott, "An Arbitary Modulation Format 'BBIQEE' for Direct Conversion Receivers", Proceedings of the Fourth Generation Mobile Forum Conference, San Diego, USA (7-9 Jul. 2005)

INTERESTS

- 3D X-Ray Diffraction Microscopy
- Engineering applications of convex optimization
- Early stage venture formation
- Hiking, Skiing and other outdoor activities

TEACHING EXPERIENCE

- EE116 – Semiconductor Device Physics (2008)
- ECE 200 – Digital Electronics Lab (2006)

REFERENCES

- Roger Fabian Pease, Professor of Electrical Engineering, Stanford University
  CISX 314, MC 4075, 330 Serra Mall, Stanford University, Stanford, CA
  (650) 723-0959, pease@stanford.edu
- Piero Pianetta, Professor of Electrical Engineering, Stanford University
  SLAC Bldg. 137, Rm. 313, Stanford University, Stanford, CA
  (650)926-3484, Pianetta@stanford.edu
- Jun Ye, President of Brion Technologies (an ASML company)
  CISX 315, MC 4075, 330 Serra Mall, Stanford University, Stanford, CA
- John Miao, Professor of Physics & Astronomy, UCLA
  Department of Physics & Astronomy, University of California, Los Angeles, CA 90095-1547
  (310) 206-2645, miao@physics.ucla.edu