

OSAMA IBRAHIM SABA

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PHONE: +972 (54) 915-1518 • EMAIL: osama.saba@siemens.com**QUALIFICATIONS SUMMARY**

Ph.D. in biomedical engineering specializing in CT imaging of the lung with additional concentrations in image processing, health informatics and systems programming. More than 9 years of experience in CT R&D including research in clinical and basic research settings and managing collaborations with multiple high caliber sites in the USA. More than 2 years of experience educating and teaching clinical users about CT technology and usability of systems and various applications. Over 5 years of laboratory research experience including dynamic and static human lung imaging/volume control, accurate airway geometry measurement, and functional animal lung studies. Around 4 years of additional work experience installing and maintaining medical equipment and providing customer support. Research work published in "Radiology", "Journal of Applied Physiology" and "Academic Radiology". Advanced in LabVIEW, Matlab, Java and C programming. Two-year Fulbright scholar.

EDUCATION

THE UNIVERSITY OF IOWA, Iowa City, IA

Ph.D. Biomedical Engineering, May 2005**Certificate Health Informatics**, May 2005**M.S. Biomedical Engineering**, May 2001

CAIRO UNIVERSITY, Cairo, Egypt

B. Sc. Systems and Biomedical Engineering, July 1992**WORK EXPERIENCE**

SIEMENS ISRAEL LTD. (HEALTHCARE), Rosh Ha'ayin, Israel

Product & Collaborations Manager, Computed Tomography, (December 2012 – Present)

- Held frequent educational sessions on different CT imaging and physics topics
- Educated and trained doctors, radiology technicians and physicists on the use of CT scanners & related applications
- Managed scientific collaborations with research sites (country-wide)
- Provided scientific and technical support to sales teams
- Managed marketing activities for CT systems and CT-related products

SIEMENS HEALTHCARE, Forchheim, Germany

Staff Scientist, Computed Tomography, (August 2008 – August 2012)

- Designed and evaluated computed tomography system components for optimized dose and image quality
- Designed, optimized and evaluated CT data preprocessing algorithms
- Evaluated image quality for new systems
- Supported customers with special research projects

SIEMENS MEDICAL SOLUTIONS, Malvern, PA, USA

Staff Scientist, Computed Tomography, (May 2005 – May 2008)

- Managed scientific collaborations with research sites (The University of Iowa, Mayo Clinic, Cleveland Clinic, University Hospitals of Cleveland, and Duke University).
- Handled research project agreements, evaluated research project progress
- Participated in setting up studies to evaluate and utilize new technologies to improve diagnostic power of CT

THE UNIVERSITY OF IOWA, Iowa City, IA, USA

Research Assistant, Department of Radiology, (January 1999 – May 2005)

- Designed and implemented a lung volume controller system for static and dynamic respiratory CT imaging
- Designed and implemented physiologic monitoring and CT scanner triggering system
- Developed an accurate airway geometry measurement system from CT images
- Led and participated in animal and human study preparation and operation
- Developed web-based real time physiologic monitoring system

Teaching Assistant, Department of Biomedical Engineering, (August 1998 - January 1999)

- Assisted students in Biological Systems Analysis assignments and projects
- Held lab sessions teaching students how to use Matlab

MINISTRY OF HEALTH, Nablus, Palestine

Clinical Engineer, (March 1995 - July 1996)

- Serviced, calibrated and maintained medical equipment
- Supervised three technicians

ACT CO., Jerusalem, Israel

Biomedical Engineer, (July 1994 - February 1995)

- Installed and serviced medical equipment
- Sold medical equipment and supplies

COMETS CO., Cairo, Egypt

Biomedical Engineer, (November 1992 - June 1994)

- Installed, serviced and maintained medical equipment
- Provided customer and technical support for sales and marketing departments

COMPUTER SKILLS

PROGRAMMING: LabVIEW, Matlab, Java and C

MICROSOFT: Word, Excel, and PowerPoint

O/S: Windows, UNIX/LINUX, DOS

RESEARCH, PUBLICATIONS AND ABSTRACTS

PH.D. DISSERTATION:

“A Characterization of Normal Human Airway Tree Geometry In-vivo Over Multiple Lung Volumes via Standardized Methods for Volumetric CT Imaging”

MASTER'S THESIS:

“Accurate Estimation of Airway Geometry with Tilt Angle Estimation from 2D HRCT Slices”

MEDICAL INFORMATICS:

“Web Based Physiologic Signals Monitoring”

SENIOR DESIGN:

“Ultrasound Guided Biopsy Needle Monitoring”

PATENTS:

Saba, O. Nov. 2013. “Verfahren und Vorrichtung zur Ermittlung von strahlauhärtungskorrigierten Sinogrammwerten und tomographischen Bilddatensätzen” (A Method and Device for the Determination of Beamhardening Correction in Sinogram and Tomographic Image Datasets). Germany DE 10 2012 208 507 A1, filed November 28, 2013. Patent Pending.

JOURNAL PAPERS:

1. Numburi UD, Schoenhagen P, Flamm SD, Greenberg RK, Primak AN, **Saba OI**, Lieber ML, Halliburton SS. "Feasibility of Dual-Energy CT in the Arterial Phase: Imaging After Endovascular Aortic Repair". *AJR* 2010; 195:486–493
2. PA Araoz, J Kirsch, AN Primak, NN Braun, **O Saba**, EE Williamson, WS Harmsen, JN Mandrekar, CH McCollough “Dual-source computed tomographic temporal resolution provides higher image quality than 64-detector temporal resolution at low heart rates”, *Journal of computer assisted tomography* 01/2010; 34(1):64-9.
3. PA Araoz, J Kirsch, AN Primak, NN Braun, **O Saba**, EE Williamson, WS Harmsen, JN Mandrekar, CH McCollough, “Optimal image reconstruction phase at low and high heart rates in dual-source CT coronary angiography”, *Int J Cardiovasc Imaging* (2009) 25:837–845

4. Cai Z, Erdahl C, Zeng K, Potts T, Sharafuddin M, **Saba O**, Wang G, Bai ER. "Adaptive Bolus Chasing Computed Tomography Angiography: Control Scheme and Experimental Results". *Biomedical Signal Processing and Control*, 3 (2008) 319–326.
5. Fuld MK, Easley RB, **Saba OI**, Chon D, Reinhardt JM, Hoffman EA, Simon BA. "CT Measured Regional Specific Volume Change Reflects Regional Ventilation in Supine Sheep". *J Appl Physiol*. 2008 vol. 104, no. 4, pp. 1177-1184.
6. Pulido JS, Campeau NG, Klotz E, Primak AN, **Saba O**, Gunduz K, Cantrill H, Salomao D, McCollough CH. "Correlation of Histological Findings from a Large Ciliochoroidal Melanoma with CT Perfusion and 3T MRI Dynamic Enhancement Studies." *Clinical Ophthalmology*, 2(2): 275:281.
7. McCollough CH, Primak AN, **Saba O**, Bruder H, Stierstorfer K, Raupach R, Suess C, Schmidt B, Ohnesorge BM, Flohr TG. "Dose Performance of a 64-Channel Dual-Source CT Scanner." *Radiology*. *Radiology*, June 2007: 243(3), 775-784.
8. Yu H, Zeng K, Bharkhada DK, Wang G, Madsen MT, **Saba O**, Policeni B, Howard MA, Smoker WR. "A segmentation-based method for metal artifact reduction." *Acad Radiol*. 2007 Apr;14(4):495-504.
9. Chon D, Beck KC, Simon BA, Shikata H, **Saba OI**, Hoffman EA. "Effect of low-xenon and krypton supplementation on signal/noise of regional CT-based ventilation measurements." *J Appl Physiol*. 2007 Apr;102(4):1535-44.
10. Lu D, Bai E, Liu J, Yu H, Wei Y, Cai Z, Sharafuddin MJ, Golzarian J, Stolpen A, **Saba O**, Vannier M, Wang G., "Projection-based bolus detection for computed tomographic angiography." *J Comput Assist Tomogr*. 2006 Sep-Oct;30(5):846-9
11. **Saba, O.I.**, Chon, D., Beck, K.C., McLennan, G., Sieren, J., and J.M. Reinhardt, Hoffman, E.A. "Static vs. Prospective Gated, Non-Breath Hold Volumetric MDCT Imaging of the Lungs". *Acad. Rad.*, 2005 Nov; 12(11):1371-84.
12. Martinez TM, Llapur CJ, Williams TH, Coates C, Gunderman R, Cohen MD, Howenstine MS, **Saba O**, Coxson HO, Tepper RS. "High-resolution computed tomography imaging of airway disease in infants with cystic fibrosis." *Am J Respir Crit Care Med*. 2005 Nov 1;172(9):1133-8. Epub 2005 Jul 28.
13. Chon D, Simon BA, Beck KC, Shikata H, **Saba OI**, Won C, Hoffman EA. "Differences in regional wash-in and wash-out time constants for xenon-CT ventilation studies." *Respir Physiol Neurobiol*. 2005 Aug 25;148(1-2):65-83.
14. Chon D, Beck KD, Shikata H, **Saba OI**, Won CH, Simon BA, and Hoffman EA. "Xenon gas flow patterns evaluated by high speed multi-row detector CT". *Progress in Biomedical Optics and Imaging*, 2004;5(23):89-101.
15. Hoffman, AE, Reinhardt, JM, Sonka, M, Simon, BA, Guo, J, **Saba, O**, Chon, D, Samrah, S, Shikata, H, Tschirren, J, Palagyi, K, Beck, KC, McLennan, G, "Characterization of the Interstitial Lung Diseases via Density-Based and Texture-Based Analysis of Computed Tomography Images of Lung Structure and Function". *Acad Radiol*, 2003. 10(10): p. 1104-18.
16. **Saba, O.I.**, E.A. Hoffman, and J.M. Reinhardt, "Maximizing Quantitative Accuracy of Lung Airway Lumen and Wall Measures Obtained from X-ray CT Imaging". *J Appl Physiol*, 2003. 95(3): p. 1063-75.

CONFERENCE PAPERS:

1. D. Chon, K. C. Beck, H. Shikata, **O. I. Saba**, C. Won, B. A. Simon, E. A. Hoffman, "Xenon Gas Flow Patterns Evaluated by High Speed Multi-Row Detector CT", *Proc. SPIE Vol. 5369, Medical Imaging 2004*
2. J. M. Reinhardt, J. Guo, L. Zhang, D. Bilgen, S. Hu, R. Uppaluri, R. M. Long, **O. Saba**, G. McLennan, M. Sonka, and E. A. Hoffman. "Integrated System for Objective Assessment of Global and Regional Lung Structure". *Medical Imaging Computing and Computer Assisted Intervention*, vol. 2208 of *Lecture Notes in Computer Science*, pp. 1384-1385, Utrecht, 2001.
3. **O.I. Saba**, E.A. Hoffman, J.M. Reinhardt, "Computed Tomographic-Based Estimation of Airway Size with Correction for Scanned Plane Tilt Angle", *Proc. SPIE Vol. 3978, p. 58-66, Medical Imaging 2000*.

ABSTRACTS:

1. B. Schmidt, **O. I. Saba**; R. Banckwitz, H. Wolf, T. G. Flohr, "Assessment of a 70kV Acquisition Mode for Pediatric CT Scanning". Abstract ID 9013492, RSNA 2010
2. Gunderson K, Sieren J, **Saba O**, Hudson M, van Beek EJ, Hoffman EA. "A Phantom for Standardized Assessment of Quantitative Lung MDCT". Abstract ID 6022383, Scientific Assembly and Annual Meeting (RSNA) 2008
3. Hudson, MA, **Saba OI**, Sieren JP, van Beek, EJ, Hoffman EA. "Functional Imaging of the Lung Via Dual Energy CT: Requirements and Limitations". American Thoracic Society Annual Meeting, Toronto, Canada, 2008; A758.
4. P. K. Saha, **O. I. Saba**, M. Hudson, A. Pick, G. El-Khoury, E. A. Hoffman. "Trabecular Bone Structural Analysis Using 64 Multi-Detector CT Scanner". M326, ASBMR, Sep 2007
5. **Saba OI**; Fuld MK; Krauss B; van Beek EJ; McLennan G; and Hoffman EA. "Dual Energy MDCT for Volumetric Assessment of V/Q: Initial Experiences". American Thoracic Society Annual Meeting, San Francisco, CA 2007, pg A938
6. Fuld, MK; **Saba OI**; Krauss B; van Beek EJ; McLennan G; and Hoffman EA. "Dual Energy Xe-MDCT for Automated Assessment of the Central Airway Tree: initial Experiences". American Thoracic Society Annual Meeting, San Francisco, CA 2007, pg A250
7. **O. I. Saba**, B. Krauss, J. Sieren, J. Morgan, M. K. Fuld, E. A. Hoffman, "Dual Energy Imaging for Assessment of Regional Lung Function via MDCT: Initial Experiences" RSNA 2006 Scientific Program, Supplement to Radiology
8. C. McCollough, A. Primak, **O. Saba**, K. Stierstorfer, C. Suess, H. Bruder, T. Flohr, "Hot Topics: Dose Performance of a New 64-channel Dual-source CT (DSCT) Scanner", RSNA 2005 Scientific Program, Supplement to Radiology
9. **O. Saba**, J. Bayouth, E. Hoffman, "Comparison of Breath-Hold and Free Breathing Approaches for 4DCT Data Acquisition", Med. Phys. 32, 1899 (2005).
10. Chon D, Shikata H, Beck KC, **Saba OI**, Sieren JP, Simon BA, Hoffman EA. "Regional V-Q distribution is more uniform at apex and in the prone position measured by MDCT". American Thoracic Society Annual Meeting, San Diego, CA 2005 pg A335.
11. **Saba OI**, Delsing A, Sieren JP, Nixon E, Tschirren J, McLennan G, Hoffman EA. "Normative airway geometry and topology measured by multidetector-row CT (MDCT) at two lung volumes." American Thoracic Society Annual Meeting, San Diego, CA 2005 pg A333.
12. Fuld MK, Easley RB, **Saba OI**, Chon D, Hoffman EA, Simon BA. "CT Measured Regional Specific Compliance Reflects Regional Ventilation in Supine Sheep". RSNA 90th Annual Meeting, Chicago, IL 2004 pg 253.
13. **O. I. Saba**, K. C. Beck, G. McLennan, A. Anchondo, A. Delsing, J. Sieren, J. Tshirren, E. A. Hoffman, "Normative Airway Geometry and Distensibility Measured by Multidetector-Row CT", Am J Respi Crit Care Med 169(7):A544, April 2004
14. A.N. Anchondo, **O.I. Saba**, A. Delsing, J. Sieren, E.A. Hoffman, G. McLennan, K.C. Beck, "Validation of CT Image Acquisition during Free Breathing (Dynamic Volumetric CT Scans)", Am J Respi Crit Care Med 169(7):A547, April 2004
15. M.K. Fuld, R.B. Easley, **O.I. Saba**, D. Chon, K.C. Beck, E.A. Hoffman, B.A. Simon, "Regional Specific Compliance as a Surrogate Measure for Regional Specific Ventilation in Supine Sheep", Am J Respi Crit Care Med 169(7):A547, April 2004
16. H.T. Robertson, M.A. Krueger, **O.I. Saba**, D. Chon, H. Shikata, M.P. Hlastala, K.C. Beck, E.A. Hoffman, "Comparison of Regional Pulmonary Blood Flow Measured by CT Indicator Dilution (CTID) and Intravenously Injected Fluorescent Microspheres (FMS)", Am J Respi Crit Care Med 169(7):A407, April 2004
17. D. Chon, K.C. Beck, H. Shikata, **O.I. Saba**, B.A. Simon, E.A. Hoffman, "Effect of Reduce Inhaled [Xenon] and [Krypton] Supplementation on Signal/Noise of Regional CT-Based Ventilation Measurements", Am J Respi Crit Care Med 169(7):A547, April 2004
18. B.A. Simon, R.B. Easley, **O. Saba**, R.K. Albert, K.C. Beck, E.A. Hoffman, "Regional Differences in Intra-Breath Lung Expansion in Saline Lavage Lung Injury Assessed with High-Speed Multi-Detector CT", Am J Respi Crit Care Med 167(7):A847, April 2003

19. E.A. Hoffman, **O.I. Saba**, G. McLennan, J. Tschirren, K. Palagyi, M. Sonka, K.C. Beck, "Regional 3-D Airway Geometry in Normal Humans by Use of Multi-Row Detector Computed Tomography", *Am J Resp Crit Care Med* 167(7):A846, April 2003
20. **O.I. Saba**, K.C. Beck, D. Chon, E. Nixon, E.A. Hoffman, "Lung Volume Measurement Reproducibility Using Gated-Axial and Spiral Multi-Row Detector CT (MDCT)", *Am J Resp Crit Care Med* 167(7):A844, April 2003
21. D. Chon, K.C. Beck, C. Won, **O.I. Saba**, B.A. Simon, E.A. Hoffman, "Differences in Wash-In and Wash-Out Time Constants for Xenon Equilibration in Lung Regions Measured by Multi-Row Detector CT", *Am J Resp Crit Care Med* 167(7):A845, April 2003
22. **Osama Saba**, Joseph Reinhardt, Geoffrey McLennan, Tyson Grubb and Eric A. Hoffman, "Gated Dynamic Volumetric CT Lung Imaging Via Inductive Plethysmography", *Am J Resp Crit Care Med* 165(8):A501, April 2002
23. R. B. Easley, **O. Saba**, D. Chon, E. A. Hoffman and B. A. Simon, "Regional Recruitment Is Unchanged Following Exogenous Surfactant In Sheep Saline Lavage Lung Injury", *Am J Resp Crit Care Med* 165(8):A383, April 2002
24. JM. Reinhardt, J Guo, L. Zhang, D. Bilgen, S. Hu, R. Uppaluri, RM. Long, **O.I. Saba**, G. McLennan, M. Sonka, EA. Hoffman, "Integrated System for Objective Assessment of Global and Regional Lung Structure", *Proc. MICCAI Oct. 2001*, Vol 2208, p. 1384-85
25. E.A. Hoffman, J.M. Reinhardt, **O.I. Saba**, U. Shreter, S. Chandra, G. McLennan, "Dynamic Volumetric Lung Imaging via Prospective Gated Sub-Second Multi-Slice Spiral CT", *RSNA 2000 Scientific Program, Supplement to Radiology*

REVIEWER

- IEEE - Transactions on Medical Imaging
- Journal of Applied Physiology

HONORS

- Fulbright Scholarship, awarded (July 1996 – July 1998)
- SPIE – Student travel grant SPIE 2000
- Iowa International Fellow (1999-2000)

LANGUAGES

- Arabic Spoken and written (mother tongue)
- English Spoken and written (fluent)
- German Spoken and written (intermediate)
- Hebrew Spoken (intermediate) and written (elementary)

TRAINING

- Royal Scientific Society**, Amman, Jordan, (March 1996 – June 1996)
 - Calibration and maintenance of various medical equipment
- E.S.M.I. Co.**, Jerusalem, Israel, (Summers 1990 and 1991)
 - Servicing and maintaining cell counter
 - Installation of ICU and CCU monitoring systems