

Hung Nien

CONTACT INFORMATION

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EDUCATION

University of Michigan, Ann Arbor, MI, USA
Ph.D., EE: Systems Sep 2009 to May 2014

- Thesis topic: Model-based X-ray CT image and light field reconstruction using variable splitting methods
- Supervisor: Professor Jeffrey A. Fessler
- GPA: 4.0/4.0

National Taiwan University, Taipei, Taiwan R.O.C.
B.S., *Magna Cum Laude*, Electrical Engineering Sep 2003 to Jun 2007

- GPA: 4.0/4.0

PROFESSIONAL EXPERIENCE

Apple Inc., Cupertino, CA Oct 2017 to present
Imaging Scientist

- Working on improving optical modeling of the camera simulation system

KLA-Tencor, Milpitas, CA Jan 2016 to Oct 2017
Research Scientist 3

- Developed cutting-edge image processing and machine learning algorithms for wafer defect detection and classification

AviSonic Technology Corporation, Hsinchu, Taiwan R.O.C. Aug 2008 to Jul 2009
Engineer

- Developed a positioning architecture and algorithm for multi-touch capacitive touch panels
- Enhanced positioning resolution on the border of capacitive touch panels
- ◇ Collaborated with ELAN Microelectronics Corp.

Alternative Military Service, Taiwan R.O.C. Aug 2007 to Jul 2008
Private

- Mandatory for male citizens of Taiwan R.O.C.

ACADEMIC EXPERIENCE

University of Michigan, Ann Arbor, MI, USA Jun 2014 to Dec 2015
Postdoctoral research fellow

- Developed algorithms for faster model-based X-ray CT image reconstruction
- ◇ Collaborated with GE Healthcare and GE Global Research
- Developed techniques for model-based image reconstruction of translucent (e.g., chemiluminescent) objects from single-port plenoptic imaging data
- ◇ Collaborated with Quantitative Laser Diagnostics Lab, University of Michigan

Graduate student research assistant Jan 2012 to May 2014

- Developed algorithms for fast model-based X-ray CT image reconstruction
- ◇ Collaborated with GE Healthcare and GE Global Research

Independent research Jan 2011 to Apr 2011

- Developed a model-based light field reconstruction method using a focal stack

National Taiwan University, Taipei, Taiwan R.O.C. Feb 2006 to Jun 2007
Independent research

- Developed a color interpolation method for suppressing rainbow artifacts
- Developed an image interpolation method for a P2P-based video streaming system

- SOFTWARE SKILLS • Programming language: C/C++, Matlab, Python
• Productivity application: \LaTeX , \BibTeX
- PREPRINTS [1] **H. Nien** and J. A. Fessler. Proximal average algorithm for imaging problems with analysis sparsity-promoting regularization. Submitted to *IEEE Trans. Computational Imaging*.
- DISSERTATION [2] **H. Nien**. Model-based X-ray CT image and light field reconstruction using variable splitting methods. Ph.D. Dissertation, Univ. of Michigan, May 2014.
- JOURNAL PAPERS [3] **H. Nien** and J. A. Fessler. Relaxed linearized algorithms for faster X-ray CT image reconstruction. *IEEE Trans. Med. Imag.*, vol. 35, no. 4, pp. 1090–8, Apr. 2016.
- [4] **H. Nien** and J. A. Fessler. Fast X-ray CT image reconstruction using a linearized augmented Lagrangian method with ordered subsets. *IEEE Trans. Med. Imag.*, vol. 34, no. 2, pp. 388–99, Feb. 2015.
- CONFERENCE PAPERS [5] **H. Nien**, J. A. Fessler, and Volker Sick. Model-based image reconstruction of chemiluminescence using a plenoptic 2.0 camera. In *Proc. IEEE Intl. Conf. on Image Processing*, pp. 359–63, 2015.
- [6] **H. Nien** and J. A. Fessler. Relaxed linearized algorithms for faster X-ray CT image reconstruction. In *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, pp. 260–3, 2015.
- [7] **H. Nien** and J. A. Fessler. Fast splitting-based ordered-subsets X-ray CT image reconstruction. In *Proc. 3rd Intl. Mtg. on image formation in X-ray CT*, pp. 291–4, 2014.
- [8] **H. Nien** and J. A. Fessler. Accelerating ordered-subsets X-ray CT image reconstruction using the linearized augmented Lagrangian framework. In *Proc. SPIE 9033 Medical Imaging 2014: Phys. Med. Im.*, p. 903332, 2014.
- [9] **H. Nien** and J. A. Fessler. Combining augmented Lagrangian method with ordered subsets for X-ray CT image reconstruction. In *Proc. Intl. Mtg. on Fully 3D Image Recon. in Rad. and Nuc. Med.*, pp. 280–3, 2013.
- [10] **H. Nien** and J. A. Fessler. Splitting-based statistical X-ray CT image reconstruction with blind gain correction. In *Proc. SPIE 8668 Medical Imaging 2013: Phys. Med. Im.*, p. 86681J, 2013.
- [11] M. Lu, **H. Nien**, J. Wu, K. Peng, P. Huang, J. Yao, C. Lai, and H. H. Chen. A scalable peer-to-peer IPTV system. In *Proc. IEEE Consumer Communications and Networking Conference*, pp. 313–7, 2007.
- OTHER PAPERS [12] **H. Nien** and J. A. Fessler. A convergence proof of the split Bregman method for regularized least-squares problems, arXiv preprint, arXiv: 1402.4371, 2014.
- PATENTS [13] Z. Yu, B. De Man, J-B. Thibault, D. Pal, L. Fu, C. Bouman, J. A. Fessler, and **H. Nien**. Accelerated iterative reconstruction. U.S. Patent 9,508,163 B2, issued November 29, 2016.
- [14] **H. Nien**, Y. Tao, C. Teng, H. Tsai, C. Huang, and C. Lin. Boundary resolution improvement for a capacitive touch panel. U.S. Patent 8,514,204 B2, issued August 20, 2013.
- [15] C. Lin, Y. Tao, **H. Nien**, B. Sung, H. Tsai, and H. Tseng. Object positioning for an x-y projected capacitive touch panel. U.S. Patent 9,069,419 B2, issued June 30, 2015.

HONORS AND AWARDS	<ul style="list-style-type: none"> • Rackham Travel Grant, University of Michigan • Student Travel Award, Fully 3D Image Recon. in Rad. and Nuc. Med. • KLA-Tencor Graduate Fellowship, KLA-Tencor • Presidential Award, National Taiwan University • Research Creativity Award, National Science Council • Undergraduate Research Scholarship, National Science Council • Delta Electronics Industrial Scholarship, Delta Electronics Inc. 	<p>2013, 2014</p> <p>2013</p> <p>2012</p> <p>2003–2007</p> <p>2007</p> <p>2006–2007</p> <p>2005</p>
SERVICE TO PROFESSION	Reviewer for IEEE Transactions on Medical Imaging, IEEE Transactions on Image Processing, Medical Physics, SIAM Journal on Imaging Sciences, and Computers in Biology and Medicine.	
AFFILIATIONS	<ul style="list-style-type: none"> • IEEE Member • SPIE Student Member 	<p>2014–2016</p> <p>2014</p>