

CURRICULUM VITAE

Personal Details:

- Name: Yuan Luo
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Academic Position:

- *Assistant Professor*, Center for Optoelectronic Biomedicine, 2011-present
National Taiwan University, Taiwan, ROC
- *Postdoctoral Associate*, 3D Optics Laboratory, Department of Mechanical Engineering,
Massachusetts Institute of Technology, Jan. 1st 2009-Jul.31st 2011.

Education:

- *Ph.D.*, College of Optical Sciences, 2004-2008
University of Arizona, USA
Dissertation: Novel Biomedical Imaging Systems
Advisor: Prof. Raymond K. Kostuk
Graduate Valedictorian of the College of Optical Sciences 2008.
GPA: 4.0
- *M. S.*, College of Optical Sciences, 2004-2007
University of Arizona, USA
GPA: 4.0
- *M. S.*, Electrical Engineering, 1995-1997
National Chung Cheng University, Taiwan
Thesis: Fractional Fourier Transform and Its Applications
Advisor: Dr. Chung J. Kuo
GPA: 4.0
- *B. S.*, Electrical Engineering, 1992-1995
National Chung Cheng University, Taiwan
Graduated with honors, and graduated early within 3 years
(ranked 1st in the graduation class)

Awards Received:

- *National Research Fellowship at MIT*, National Science Council, Taiwan, 2009.

- *Graduate Valedictorian*, College of Optical Sciences, University of Arizona, USA, 2008.
- *Achievement Award for Outstanding Research Assistant*, Graduate and Professional Student Council (GPSC), University of Arizona, USA, 2008.
- *Outstanding Graduate Student Award*, College of Optical Sciences, University of Arizona, USA, 2008.
- *TRIF-funded Photonic Research Fellowship*, Technology & Research Initiative Funding (TRIF), College of Optical Sciences & College of Engineering, University of Arizona, USA, 2006-2008.
- *Christopher Karl Schultz Memorial Scholarship*, College of Optical Sciences, University of Arizona, USA, 2006.
- *Scholarship for Outstanding Students Studying Abroad*, Ministry of Education, Taiwan, 2005-2007.
- *Imaging Program Fellowship*, Optical Sciences Center & Radiology Department, University of Arizona, USA, 2005-2006.
- *GTS/GRS Award*, ECE Department, University of Arizona, USA, 2002-2004.
- *Scholarship for Excellent Students Studying Abroad*, NWL, Taiwan, 2002-2004.
- *Commander-in-Chief Award for Outstanding Officers*, Army, Taiwan, 1999/8.
- *Electrical Engineering Fellowship*, National Science Council, Taiwan, 1995-1997.
- *Outstanding Academic Achievement Award*, Veterans Affairs Commission, Executive Yuan, Taiwan, 1996/12.
- *Scholarship of Outstanding Academic Achievement Award*, Ministry of Education, Taiwan, 1996.
- *Scholarship of Excellent Academic Achievement Award*, Liming Cultural Enterprise Foundation, Taiwan, 1995-1996 (consecutive 2 times).
- *Scholarship of Outstanding Academic Achievement Award*, Shing-Tian Temple Foundation of Culture and Education, Taiwan, 1994 (consecutive 2 times).
- *The President's Award for Outstanding Students*, College of Engineering, National Chung Cheng University, 1993-1994(consecutive 2 times).
- *Excellent Academic Achievement Award*, Su Shih-Jan Foundation, Ministry of Education, Taiwan, 1994.

Invited Talks:

- "Unconventional Optics: Spatial-Spectral Imaging," *National Central University*, Taoyuan, Oct., 2011.
- "Unconventional Optics," *CSIT*, Taiwan, Sept., 2011.

- "Spectrum-Resolved Fluorescence Imaging in Multifocal Volume Holographic Microscopy," *SPIE Photonics West*, San Francisco, Jan., 2011.
- "4D Volume Holographic Microscopy and Cloak for Visible Light," *Delta Electronics Inc.*, Taiwan, Jan., 2011.
- "Spatial-Spectral Volume Holographic Microscopy," *National Chung Cheng University*, July, 2010.
- "Spatial-Spectral Volume Holographic Imaging System," *OSA/CIPS Brown Bag Seminar at MIT*, USA, November, 2009.
- "Spatial-Spectral Volume Holographic Imaging System," *National Institute of Standards and Technology (NIST)/Industry Polymer Surface/Interface Consortium Meeting*, June, 2009.
- "Hyper-spectral Imaging System and 4D Holographic Microscope," *National Institute of Health (NIH)*, May, 2009.
- "Spatial Spectral Volume Holographic Imaging System," *National Institute of Standards and Technology (NIST)*, March, 2009.

Patents:

- "Broadband Phase-Preserved Optical Elevator", *M.I.T. Case No. 15109*, Yuan Luo, T.C. Han, B. Zhang, C.W. Qiu, and George Barbastathis.
- "Phase-Encoded Multiplane Microscope", *M.I.T. Case No. 14668*, Yuan Luo, and George Barbastathis.
- "Wavelength-Coded Multi-Focal Microscope", *M.I.T. Case No. 13942*, Yuan Luo, Se Baek, and George Barbastathis.
- "Contrast-Enhanced Multiplexing Imaging", *M.I.T. Case No. 13982*, Yuan Luo, Se Baek, and George Barbastathis.
- "Phase Contrast Multi-Focal Microscope", *M.I.T. Case No. 13981*, Yuan Luo, Jennifer Barton, Raymond K. Kostuk, and George Barbastathis.

National/International Outreach and Services:

- *Reviewer*, Optics Letters, Optical Society of America (OSA), 2009-present.
- *Reviewer*, Biomedical Optics Express, Optical Society of America (OSA), 2011-present.
- *Reviewer*, Journal of Optical Society of America, Optical Society of America (OSA), 2009-present.
- *Reviewer*, Optics Communications, 2009-present.

- *Member*, Optical Society of America (OSA), 2004-present.
- *Member*, The International Society for Optical Engineering (SPIE), 2007-present.

Experience:

- *Post-doctor Associate*, Mechanical Engineering Department, MIT, 2009-present.
- *Research Assistant/Associate*, Photonics Systems Laboratory, Optical Sciences Center and ECE Department, University of Arizona, 2003-2008.
- *Representative Ph.D. Student at Frontiers in Optics of OSA in Rochester*, College of Optical Sciences & Graduate and Professional Student Council (GPSC), University of Arizona, 2006.
- *Task Leader*, Chunghwa Telecom Worker's Union, Taiwan, 2001-2002.
- *Associate Researcher*, Chunghwa Telecom Laboratories, Taiwan, 2000/1- 2002/8.
- *Second Lieutenant*, Army, Taiwan, 1997/10-1999/10.
- *Teaching Assistant*, Department of Electrical Engineering, National Chung Cheng University, 1996/9-1997/2.
- *Research Assistant*, Department of Electrical Engineering, National Chung Cheng University, 1995/7-1997/6.
- *Class Leader*, Department of Electrical Engineering, National Chung Cheng University, 1996.
- *Member*, Students' Union, National Chung Cheng University, 1994.
- *Class Leader*, Department of Electrical Engineering, National Chung Cheng University, 1994-1995 (consecutive 3 times).

International Journal Publications:

- **Yuan Luo**, I. K. Zervantonakis, S. Oh, R. D. Kamm, & G. Barbastathis, “Spectrally resolved multidepth fluorescence imaging,” *Journal of Biomedical Optics*, vol. 16, pp.096015, Sept. 2011.
- **Yuan Luo**, E. de Leon, J. Lee, J. M. Castro, J. K. Barton, R. K. Kostuk, & G. Barbastathis, “Phase contrast volume holographic microscopy for real-time and multi-plane imaging,” *Optics Letters*, vol. 36, pp.1290-1292, Apr. 2011.
- J. M. Castro, J. Brownlee, **Yuan Luo**, E. de Leon, J. K. Barton, R. K. Kostuk, & G. Barbastathis, “Spatial-spectral volume holographic systems: resolution dependence on effective thickness,” under revision in *Applied Optics*, Jan. 2011.
- B. Zhang, **Yuan Luo**, X. Liu, & G. Barbastathis, “Macroscopic invisible cloak for visible light,” *Physical Review Letters*, vol. 106, pp.033901.1-033901.4, Jan. 2011. (highlighted in *Nature News*, Dec. 2010, and also selected as the 4th out of the top 10 breakthrough inventions of 2010 in *Physics World* (<http://physicsworld.com/cws/article/news/44618>) in Dec. 2010)
- **Yuan Luo**, J. M. Castro, J. K. Barton, R. K. Kostuk, & G. Barbastathis, “Simulations and experiment of aperiodic and multiplexed gratings in volume holographic imaging systems,” *Optics Express*, vol. 19, pp.19273-19285, Aug. 2010.
- L. A. Waller, **Yuan Luo**, & G. Barbastathis, “Transport of intensity phase imaging in a volume holographic microscope,” *Optics Letters*, Vol. 35, pp. 2961-2963, 2010. Aug. 2010.
- **Yuan Luo**, J. M. Russo, R. K. Kostuk, & G. Barbastathis, “Silicon oxide nano-partilces doped PQ-PMMA for volume holographic filters,” *Optics Letters*, vol. 35, pp. 1269-1271, Apr. 2010.
- P. J. Gelsinger-Austin, **Yuan Luo**, J. M. Watson, R. K. Kostuk, G. Barbastathis, J. K. Barton, & J. M. Castro, "Optical design for a spatial-spectral volume holographic imaging system," *Optical Engineering*, vol. 49, pp.043001-043001-5, Apr. 2010.
- **Yuan Luo**, S. Oh, & G. Barbastathis, "Wavelength-coded multi-focal microscopy," *Optics Letters*, vol. 35, pp. 781-783, Mar. 2010. (also selected for publication in *Virtual J. of Biomedical Optics*, vol. 5, Iss. 6, Apr. 2010.)
- **Yuan Luo**, P. J. Gelsinger-Austin, J. M. Watson, G. Barbastathis, J. K. Barton, & R. K. Kostuk, "Laser induced fluorescence imaging of sub-surface tissue structures with a volume holographic spatial-spectral imaging system," *Optics Letters*, vol. 33, pp. 2098-2100, Sept. 2008. (also selected for publication in *Virtual J. of Biomedical Optics*, vol. 3, Iss. 11, Oct. 2008.)

- L. J. Arauz, **Yuan Luo***, J. E. Castillo, J. K. Barton, & R. K. Kostuk, "Fiber array fabrication technique for 15 μ m diameter single mode fibers," *Optical Engineering*, vol. 47, pp. 074002, Jul. 2008.
- **Yuan Luo**, P. J. Gelsinger, G. Barbastathis, J. K. Barton, & R. K. Kostuk, "Optimization of multiplexed holographic gratings in PQ-PMMA for spectral-spatial imaging filters," *Optics Letters*, vol. 33, pp. 566-568, Mar. 2008. (also selected for publication in *Virtual J. of Biomedical Optics*, vol. 3, Iss. 4, Apr. 2008.)
- **Yuan Luo**, L. J. Arauz, J. E. Castillo, J. K. Barton, & R. K. Kostuk, "Parallel optical coherence tomography system," *Applied Optics*, vol. 46, pp. 8291-8297, Dec. 2007. (also selected for publication in *Virtual J. of Biomedical Optics*, vol. 3, Iss. 1, Jan. 2008.)
- **Yuan Luo**, J. E. Castillo, L. J. Arauz, J. K. Barton, & R. K. Kostuk, "Coupling and cross-talk effects in 12-15 μ m diameter single-mode fiber arrays for simultaneous transmission and photon collection from scattering media," *Applied Optics*, vol. 46, pp. 253-261, Jan. 2007.
- C.J. Kuo, N.Y. Chang & **Yuan Luo**, "Free-space Fresnel diffraction for the approximation of fractional Fourier transform," *Optical & Quantum Electronics*, vol. 34, pp. 369~376, Apr. 2002.
- C.J. Kuo & **Yuan Luo**, "Generalized joint fractional Fourier transform correlators: a compact approach," *Applied Optics*, vol. 37, no. 35, pp. 8270~8276, December 1998.

News Articles:

- B. Zhang, **Yuan Luo**, X. Liu, & G. Barbastathis" Macroscopic invisible cloak for visible light," highlighted in *Nature News*, Dec. 2010.
(also selected as the 4th out of the top 10 breakthrough inventions of 2010 in *Physics World*, Dec. 2010 (<http://physicsworld.com/cws/article/news/44618>))
- **Yuan Luo**, I. Zervantonakis, S. Oh, R. Kamm & G. Barbastathis" Volume holographic microscopy shows cell depths in real-time," *SPIE Newsroom*, Nov. 2010.

Conference Publications:

- **Yuan Luo**, & G. Barbastathis" Unconventional Spatial-Spectral Sensing and Imaging," *IEEE the 8th international networked sensor*, Taiwan, Jun. 2011.
- **Yuan Luo**, & G. Barbastathis" Phase-Coded Volume Holographic Microscopy," *SPIE Biomedical Optics*, Munich, Germany, May. 2011.
- **Yuan Luo**, I. Zervantonakis, S. Oh, R. Kamm & G. Barbastathis" Spectrum-resolved fluorescence imaging in multifocal volume holographic microscopy," *SPIE photonics West*, San Francisco, USA, Jan. 2011.

- L. Waller, **Yuan Luo**, and G. Barbastathis, "Quantitative phase imaging in a volume holographic microscope," *Advanced Phase Measurement Methods in Optics and Imaging*, Switzerland, May, 2010.
- **Yuan Luo**, S. Oh, S. Kou, C. J. R. Sheppard, & G. Barbastathis" Image Formation of Volume Holographic Microscopy Using Intensity Point Spread Functions," *SPIE Symposium on Medical Imaging 2010*, San Diego, USA, Feb. 2010.
- **Yuan Luo**, P. J. Gelsinger, E. D. Leon, J. Harwell, J. K. Barton, R. K. Kostuk, & G. Barbastathis" Phase Contrast Volume Holographic Microscope," *Frontiers in Optics 2009*, San Jose, USA, Oct. 2009.
- **Yuan Luo**, P. J. Gelsinger, J. K. Barton, R. K. Kostuk, & G. Barbastathis" Spectral-Spatial Depth Sectioning of Biological Samples Using Silicon Oxide Nano-Particles Doped PQ-PMMA," *OSA topics meeting*, Vancouver, Canada, Apr. 2009.
- **Yuan Luo**, P. J. Gelsinger, G. Barbastathis, J. K. Barton, & R. K. Kostuk, " Fluorescent Tissue Imaging with A Multiplexed Holographic Spectral-spatial System," *Frontiers in Optics 2008*, Rochester, USA, Oct. 2008.
- **Yuan Luo**, P. J. Gelsinger, G. Barbastathis, J. K. Barton, & R. K. Kostuk, "Volume Holographic Angle-depth-wavelength Filters for Spectral-spatial Imaging Systems," *OSA topics meeting*, Florida, USA, Mar. 2008.
- P. J. Gelsinger, **Yuan Luo**, R. K. Kostuk, J. K. Barton, & G. Barbastathis, "Optical Design for Spatial-Spectral Volume Holographic Imaging System," *OSA topics meeting*, Florida, USA, Mar. 2008.
- **Yuan Luo**, P. J. Gelsinger, G. Barbastathis, J. K. Barton, & R. K. Kostuk, "Multiplexing Volume Holographic Gratings for a Spectral-spatial Imaging System," *SPIE photonics West*, San Jose, USA, Jan. 2008.
- **Yuan Luo**, P. J. Gelsinger, G. Barbastathis, J. K. Barton, & R. K. Kostuk, " Volume Holographic Gratings Using PQ/PMMA for Angle-Depth-Wavelength Filters," *Frontiers in Optics 2007*, San Jose, USA, Sept. 2007.
- R. K. Kostuk, G. Barbastathis, P. J. Gelsinger, **Yuan Luo**, & J. Watson, " Angle-Wavelength Matching Conditions for Multiplexed 3-D Spatial and Spectral Holographic Imaging," *Frontiers in Optics 2007*, San Jose, USA, Sept. 2007.
- L. J. Arauz, **Yuan Luo**, J. E. Castillo, R. K. Kostuk, & J. K. Barton, "10-Channel fiber array fabrication technique for parallel optical coherence tomography system," *SPIE photonics West*, San Jose, USA, Jan. 2007.
- **Yuan Luo**, J. E. Castillo, L. J. Arauz, J. K. Barton, & R. K. Kostuk, "Coherent proximity sensor with high density fiber array," *Frontiers in Optics 2006*, Rochester, USA, Oct. 2006.

- **Yuan Luo**, J. E. Castillo, L. J. Arauz, J. K. Barton, & R. K. Kostuk, "Modeling and experimental measurement of scattering effects in a high parallel fiber imaging system," *Frontiers in Optics 2005*, Tucson, Oct. 2005
- J. E. Castillo, **Yuan Luo**, L. J. Arauz, J. K. Barton, & R. K. Kostuk, "The channel interferometer for an endoscopic parallel optical coherence tomography system," *Frontiers in Optics 2005*, Tucson, USA, Oct. 2005.
- H.T. Chang, C.J. Kuo, **Yuan Luo**, C.H. Yeh, & N.Y. Chang, "Wavelength division optical interconnection using VCSEL array and diffraction elements," *1997 Workshop on Consumer Electronics: Digital Video and Multimedia*, pp. A6-4/19~22, Taipei, Oct. 1997.
- C.J. Kuo & **Yuan Luo**, "Filtering in Wigner distribution," *Proceedings of Workshop on Consumer Electronics*, pp. A3.4.18-20, Oct. 1997.
- **Yuan Luo** & C.J. Kuo "Fractional correlation through joint transform correlator," *Proceedings of Progress in Electromagnetics Research Symposium*, vol. 1, pp. 311, Jan. 1997.
- C.J. Kuo, B.R. Hwang, S.F. Chang, T.C. Chen, H. T. Chang, **Yuan Luo**, C.H. Yeh, & N.Y. Chang, "Wavelength division optical interconnection using VCSEL array and diffraction optics," *Proceedings of Photonics Taiwan'96*, Hsinchu, vol. 1, pp. 80~82, Dec. 1996.
- **Yuan Luo** & C.J. Kuo, "Joint fractional Fourier transform correlators: three different approaches," *Proceedings of Photonics Taiwan*, vol. 1, pp. 53-55, Dec. 1996.