

**John C. Young**  
Assistant Professor of Electrical and Computer Engineering  
University of Kentucky, Lexington, KY 40506-0046

### Professional Preparation

Auburn University, Auburn, AL	Electrical Engineering	B.E.E., 1997
Clemson University, Clemson, SC	Electrical Engineering	M.S., 2000
Clemson University, Clemson, SC	Electrical Engineering	Ph.D., 2002
Tokyo Institute of Technology, Japan	Computational Electromagnetics	Postdoctoral, 2003-2005

### Appointments

Assistant Professor	Electrical and Computer Eng., Univ. of Kentucky	2014-present
Research Asst. Professor	Electrical and Computer Eng., Univ. of Kentucky	2008-2014
R&D Antenna Engineer	Japan Radio Co., Tokyo, Japan	2005-2008

### Products

#### Most Related Products

1. J.C. Young, R.J. Adams, and S.D. Gedney, "A Stepped Non-Linear Solver for Non-Linear Magnetic Materials with Hysteresis," To be published in *IEEE Trans. Magnetics*.
2. J.C. Young, R.J. Adams, and S.D. Gedney, "Well-Conditioned Nyström-Discretization of the Volume Integral Equation for Eddy Current Analysis," To be published in *IEEE Trans. Magnetics*.
3. J.C. Young, D. Boyd, S.D. Gedney, T. Suzuki, and J. Liu, "A DGFETD Port Formulation for Photoconductive Antenna Analysis," *IEEE Antennas and Wireless Propagation Letters*, In Press, 2014.
4. T. Suzuki, H. Yonamine, T. Konno, J. C. Young, K. Murai, F. Miyamaru, K. Takano, H. Kitahara, and M. Hangyo, "Analysis and Design of Concave Lens with Metallic Slit Array for Terahertz Wave Band," *Applied Physics A*, vol. 115, no. 2, pp. 495-500, May. 2014.
5. J.C. Young, S.D. Gedney, and R.J. Adams, "Eddy Current Analysis using a Nyström-Discretization of the Volume Integral Equations," *IEEE Trans. Magnetics.*, vol. 49, no. 12, pp. 5675-5681, Dec. 2013.

#### Other Significant Products

6. T. Suzuki, T. Suzuki, J.C. Young, K. Takano, H. Kitahara, and M. Hangyo, "Analysis of artificial dielectric lens with metallic rectangular chips for terahertz wave band and physical explanation by periodic model," *Applied Physics A*, vol. 109, no. 4, pp. 825-830, Nov. 2012.
7. B. Zhao, J.C. Young, and S.D. Gedney, "SPICE Lumped Circuit Subcell Model for the Discontinuous Galerkin Finite-Element Time-Domain Method," *IEEE Trans. Microw. Theory Tech.*, vol. 60, no. 9, pp. 2684-2692, Sept. 2012.
8. S. D. Gedney and J. C. Young, "The Locally Corrected Nyström Method for Electromagnetics," in *Computational Electromagnetics: Recent Advances and Engineering Applications*, R. Mittra, ed. New York: Springer, 2014, pp. 149-198.
9. S.D. Gedney, J.C. Young, T.C. Kramer, J.A. Roden, "A Discontinuous Galerkin Finite-Element Time-Domain Method Modeling of Dispersive Media," *IEEE Trans. Antennas Propagat.*, vol. 60, no. 4, pp. 1969-1977, April 2012.

10. J.C. Young, Y. Xu, R.J. Adams, and S.D. Gedney, "High-Order Nyström Implementation of an Augmented Electric Field Integral Equation," *IEEE Antennas and Wireless Propagation Letters*," vol. 11, pp. 846-849, 2012.

### **Synergistic Activities**

Dr. Young has made significant contributions to the analysis and design of slot array antennas using hybrid finite-element / spectral-domain integral equation formulations. Since a large class of slot arrays can be modeled as quasi-two-dimensional structures, spectral-domain integral equations provide a rigorous and efficient analysis technique. At Japan Radio Company and the Tokyo Institute of Technology, Dr. Young developed these hybrid codes for slot array antenna design as well as array optimization methods based on full-wave analysis. He designed antennas for use in sea-based radar systems which are in production and he is also party to several patents related to slot antenna arrays.

Currently Dr. Young is currently funded in several areas by the Office of Naval Research. For ONR, he is investigating techniques to computationally model the effects of pressure on the magnetic signature of magnetic, conducting materials. This is a multi-disciplinary effort requiring the fusion of materials, mechanics, and electromagnetic research. Another multi-disciplinary effort that Dr. Young has lead is the analysis and design of terahertz-band antennas supported by the Kentucky Science and Engineering Foundation. This effort requires collaboration between experts in device fabrication, electromagnetic simulation, and laser systems.

### **Honors and Awards**

- Graduate Student of the Year: Clemson University, Dept. of ECE, 2002
- Monbusho (Japan) Post-Doctoral Fellowship: 2003-2005
- Monbusho (Japan) Graduate Research Fellowship: Summer 2000
- NSF Graduate Fellowship: 1998-2000

### **Professional Membership and Activities**

- Senior Member, IEEE
- IEEE Antennas and Propagation Society
- IEEE Microwave Theory and Techniques Society
- Journal Reviewer: IEEE Transactions on Antennas Propagation; IEEE Antennas and Wireless Propagation Letters; Progress in Electromagnetics Research (PIER); Applied Computational Electromagnetics Society (ACES)

### **Recent Collaborators and Other Affiliations**

#### **Collaborators and Co-Authors**

Adams, Robert J.	Dept. of Electrical & Computer Eng., University of Kentucky
Gedney, Stephen D.	Dept. of Electrical & Computer Eng., University of Kentucky
Kramer, Tyler	The Aerospace Corporation
Xin, Xu	Dept. of Electrical & Computer Eng., University of Kentucky
Suzuki, Takehito	Dept. of Electrical & Electronic Eng., Ibaraki University, Japan

#### **Graduate Advisor and Postdoctoral Sponsors**

Graduate Advisor : Professor Chalmers M. Butler, Dept. of ECE, Clemson University  
Postdoctoral Sponsor : Jiro Hirokawa and Makoto Ando, Dept. of Electrical and Electronic Engineering, Tokyo Institute of Technology