

## **Y. Tong Jade Morton, Ph.D.**

Department of Electrical and Computer Engineering  
School of Engineering and Applied Science  
Miami University, Oxford, OH 45056

Phone: (513) 529-6070

E-mail: [mortonyt@muohio.edu](mailto:mortonyt@muohio.edu)

Website: <http://www.users.muohio.edu/mortonyt>

---

### **EDUCATION**

- Ph.D. Electrical Engineering** (1991). The Pennsylvania State Univ., University Park, PA.
- M.S. Electrical Engineering** (1987). Case Western Reserve Univ., Cleveland, OH.
- M.S. Systems Analysis** (2000). Miami University, Oxford, OH.
- B.S. Physics** (1983). Nanjing University, Nanjing, China.

### **ACADEMIC EXPERIENCE**

#### **Associate Professor (July 2006 – Present)**

Department of Electrical and Computer Engineering, Miami University, Oxford, OH.

#### **Assistant Professor (July 2004 – Present)**

Department of Electrical and Computer Engineering, Miami University, Oxford, OH.

#### **Assistant Professor (August 2000 – June 2004)**

Department of Manufacturing and Mechanical Engineering, Miami University, Oxford, OH.

#### **Visiting Assistant Professor (January 1997 – May 2000)**

Department of Computer Science and Systems Analysis, Miami University, Oxford, OH.

#### **Post-doctoral Research Fellow (July 1991 – July 1993)**

Space Physics Research Laboratories, University of Michigan, Ann Arbor, MI.

#### **Research Assistant (August 1987 – July 1991)**

Department of Electrical & Computer Engineering, The Pennsylvania State University, University Park, PA.

#### **Research Assistant (August 1986 – May 1987)**

Department of Electrical Engineering & Applied Physics, Case Western Reserve Univ., Cleveland, OH.

#### **Faculty (August 1983 – August 1985)**

Department of Physics, Nanjing University, Nanjing, China.

### **SELECTED RESEARCH GRANTS**

- PI, “An Integrated Spatial Digital Beam Forming and Adaptive Periodogram Technique for Interference and Jamming Cancellation,” AFRL, 2006.
- PI, “Multi-channel RF Receiver/Exciter Systems,” DAGSI, 2006.
- PI, “Integrated Navigation Reference Systems for Micro-UAV Information Applications,” AFRL, 2005.
- PI, “Intelligent Sensing and Control for Autonomous Vehicles,” DAGSI, 2005.
- PI, “Integrated Reconfigurable Aperture, Digital Beam Forming, and Software GPS Receiver for UAV Navigation,” AFOSR, 2004.
- Co-PI, “Dual-Beam incoherent scatter radar study of the mesosphere at Arecibo,” NSF, 2003.
- PI, “Developing Signal Processing Algorithms for Weak GPS Signal Acquisition in Urban Environment”, AFOSR, 2003.

### **SELECTED AWARDS**

- Outstanding Researcher Award, School of Engineering and Applied Science, Miami University, 2005.
- Committee for Enhancement of Learning and Teaching Excellence Award, Miami University, 2005.
- Best paper, ION GNSS conference, 2004.
- National Research Council/AFOSR Summer Faculty Fellowship Award, 2004.
- National Research Council/AFOSR Summer Faculty Fellowship Award, 2003.
- National Research Council/AFOSR Summer Faculty Fellowship Award, 2002.
- First place award winner, 5th Annual Graduate Research Exhibition, Penn State University, 1990.
- Morton, Y. T., NSF award to attend The International School on Atmospheric Radar in Kyoto, Japan, 1988.

### **SELECTED PUBLICATIONS**

- Zhou, Q. H., J. Friedman, S. Raizada, C. Tepley, and Y. T. Morton, "Morphology of nighttime ion, potassium and sodium layers in the meteor zone above Arecibo," *J. Atmos. Solar-Terr. Phys.*, in press, 2005.
- Martin, J. D., Y. T. Morton, Q. Zhou, "Neural Network Development for the Forecasting of Upper Atmosphere Parameter Distributions," *Advances in Space Res.*, Vol. 36, No. 12, P2480-2485, 2005.
- Zhou, Q. H. and Y. T. Morton, "Incoherent scatter radar study of photochemistry in the E-region," *Geophys. Res. Lett.*, V.32, L01103, 2005.
- Morton, Y. T., L. L. Liou, D. M. Lin, J. B. Tsui, Q. Zhou, "Broadband interference cancellation using digital beam forming and a software receiver," *Proc. 2005 ION GNSS Conf.*, Sept., 2005, Long Beach, CA.
- Liou, L. L., D. M. Lin, J. B. Tsui, J. Schamus, and Y. T. Morton, "Baseline Vector Measurement Using a Two-Channel Software GPS Receiver," *Proc. 2005 ION GNSS Conf.*, Sept. 2005, Long Beach, CA.
- Liou, L. L., D. M. Lin, J. B. Tsui, J. Schamus, and Y. T. Morton, "GPS Time Tag Using Software GPS Receiver Approach," *Proc. 2005 ION GNSS Conference*, Sept. 2005, Sept., 2005, Long Beach, CA.
- Liou, L. L., D. M. Lin, J. B. Tsui, J. Schamus, and Y. T. Morton, "Frequency Characterization of A/D Converter in Software GPS Receivers," *Proc. the 2005 Joint IEEE Int'l Frequency Control Symposium and Precise Time & Time Interval Systems & Applications Meeting*, Vancouver, Canada, August 2005.
- Smith, J. E., S. Campbell, Y. T. Morton, "Design and implementation of a control algorithm for an autonomous lawn mower," *Proc. 48th IEEE Int'l Midwest Sym. on Circuits & Sys.*, Cincinnati, OH, August, 2005.
- Morton, Y. T., M. P. French, Q. Zhou, J. B. Y. Tsui, D. M. Lin, M. M. Miller, D. Jennings, "A Software Approach to Access Ultra-Wide Band Interference on GPS Receivers," *IEEE Trans. Aerospace & Electronics Magazing*, V.20, No.1, P28-33, 2005.
- Zhou, Q. H., Y. T. Morton, J. D. Mathews, and D. Janches, "Aspect sensitivity of VHF echoes from field aligned irregularities in meteor trails and thin ionization layers," *Atmos. Chem. & Phy.*, 4, 685-692, 2004.
- Morton, Y. T. J., L. L. Liou, D. M. Lin, J. B.Y. Tsui, and Q. Zhou "Interference Cancellation Using Power Minimization and Self-coherence Properties of GPS Signals," *Proc. of the 2004 ION GNSS Conference*, P132-143, Long Beach, CA, Sept., 2004.
- Miller, M., J. Raquet, J. Morton, F. Van Graas, B. Pervan, and L. O'Rear, "Just Keep Rolling a Lawn, ION's Autonomous Mowers," *GPS World*, P16-26, Sept. 2004.
- Morton, Y. T. J., L. L. Liou, D. M. Lin, J. B.Y. Tsui, and Q. Zhou "Interference Cancellation Using Power Minimization and Self-coherence Properties of GPS Signals," *Proc. of the 2004 ION GNSS Conference*, P132-143, Long Beach, CA, Sept., 2004.
- McNally, B., M. Stutzman, C. Korando, J. Macasek, C. Mantz, S. Miller, J. Morton, S. Campbell, and J. Leonard, "The Miami Red Blade: An Autonomous Lawn Mower," *Proc. of the 2004 ION Annual Meeting*, P538-542, Dayton, OH, June 2004.
- Morton, Y. T., M. P. French, Q. Zhou, J. B. Y. Tsui, D. M. Lin, M. M. Miller, D. Jennings, "A Software Approach to Access Ultra-Wide Band Interference on GPS Receivers," *Proc. of the 2004 IEEE PLANS Conference*, P551-557, Monterey, CA, April, 2004.
- Mantz, C. P., Q. Zhou, and Y. T. Morton, "Application of a Neural Network Model to GPS Ionosphere Error Correction," *Proc. of the 2004 IEEE PLANS Conf.*, P538-542, Monterey, CA, April 2004.
- Morton, Y. T., Troy D. A., and Pizza G. A., "A State-Based Modeling Approach to Develop Component-Based Control Software for Flexible Manufacturing Systems", *Int. J. Computer Integrated Manufacturing*, V.16, No. 4-5, P292-306, 2003.
- Morton, Y. T. J., J. B. Tsui, D. M. Lin, M. M. Miller, J. Schamus, Q. Zhou, and M. P. French, "Assessment and handling of CA code self-interference during weak GPS signal acquisition", *Proc. of the 2003 Institute of Navigation Conference*, P646-653, Portland, OR, Sept. 2003.
- Liou, L.L., J. B. Tsui, D. M. Lin, J. Schamus, F. van Graas, and Y. T. J. Morton, "Passive Altimeter Study Using GPS Flight Data," *Proc. of the 2003 ION GPS Conf.*, P1264-1270, Portland, OR, Sept. 2003.
- Martin, J. D., Y. T. Morton, and Q. Zhou, "Neural network development for the forecasting of upper atmosphere parameters distributions", *Proc. of the 34<sup>th</sup> COSPAR Scientific Assembly*, the Second World Space Congress, Houston, TX, October 2002.
- Lin, D. M., J. B. Tsui, L. L. Liou, and Y. T. Morton, "Sensitivity analysis of a stand alone GPS software GPS receiver and an acquisition method", *Proc. of the 2002 ION GPS Conf.*, Portland, OR, Sept. 2002.
- Morton, Y. T., D. A. Troy, G. A. Pizza, O. Ettouney, "Incorporating Component-Based Control Software In Manufacturing Engineering Instruction", *Proc. 2002 ASEE Conf.*, Montreal, Canada, June 2002.
- Morton, Y. T., D. A. Troy, G. A. Pizza, "An approach to develop component-based control software for flexible manufacturing systems", *Proc. 2002 American Control Conf.*, Anchorage, Alaska, May 2002.
- Morton, Y. T., "East meets west: Making the best of two worlds," *Proc. of 2000 Frontiers In Education Conf.*, Kansas City, Kansas, October 2000.
- Mathews, J. D. and Y. T. Morton, "Radar Measurements of Dynamics and Layering Processes in the 80-150 km Region at Arecibo," *Adv. in Space Research* 14, No. 9, P153-169, 1994.

- Hays, P. B., D. L. Wu, M. D. Burrage, D. A. Gell, H. J. Grassl, R. S. Lieberman, A. R. Marshall, Y. T. Morton, D. A. Ortland, W. R. Skinner, "Observations of the diurnal tide from space," *J. Atmos. Sci.*, 51, P3077-3093, 1994.
- Morton, Y. T., R. S. Lieberman, P. B. Hays, D. A. Ortland, A. R. Marshall, D. Wu, W. R. Skinner, M. D. Burrage, D. A. Gell, J. H. Yee, "Global mesospheric tidal wind fields observed by the High Resolution Doppler Imager on board the Upper Atmosphere Research Satellite," *Geophys. Res. Lett.*, V.20, No.12, P1263-1266, 1993.
- Burrage, M. D., W. R. Skinner, A. R. Marshall, P. B. Hays, R. S. Lieberman, S. J. Franke, D. A. Gell, D. A. Ortland, Y. T. Morton, F. J. Schmidlin, R. A. Vincent, and D. Wu, "Comparison of HRDI wind measurements with Radar and Rocket observations," *Geophys. Res. Lett.*, V.20, No.12, P1259-1262, 1993.
- Morton, Y. T. and J. D. Mathews, "Effects of the 13-14 March 1989 geomagnetic storm on the E-region tidal ion layer structure at Arecibo during AIDA," *J. of Atmos. and Terr. Phy.*, V.55, No.3, P467- 485, 1993.
- Morton, Y. T., J. D. Mathews, and Q. Zhou, "Further evidence for a 6-hour tide above Arecibo," *J. of Atmos. and Terr. Phy.*, V.55, No.3, P459- 465, 1993.
- Mathews, J. D., Y. T. Morton and Q. Zhou, "Observation of ion layer motions during the AIDA campaign," *J. of Atmos. and Terr. Phy.*, V.55, No.3, P447- 457, 1993.
- Mathews, J. D., Q. Zhou, C. R. Philbrick, Y. T. Morton, and C. S. Gardner, "Observations of ion and sodium layer coupled processes during AIDA," *J. of Atmos. and Terr. Phy.*, V.55, No.3, P487-498, 1993.
- Hays, P. B., V.J. Abreu, M.D. Burrage, D.A. Gell, H.J. Grassl, A.R. Marshall, Y.T. Morton, D.A. Ortland, W.R. Skinner, D.L. Wu, and J.-H. Yee, "Remote sensing of mesospheric winds with the High Resolution Doppler Imager", *Planet. Space Sci.* Vol. 40, P1599- 1606, 1992.
- Mathews, J. D. and Y. T. Morton, "Radar measurements of dynamics and layering processes in the 80-150 km region at Arecibo," 1992 COSPAR Proceedings.
- Mathews, J. D., Q. Zhou, Y. T. Morton, C. S. Gardner, and T. J. Beatty, "Simultaneous observation of narrow sodium and narrow ionization layers using both Lidar and Incoherent Scatter Radar techniques at Arecibo during AIDA," *Int. Sym. on Mid. Atm. Studies, Dushanbe, Tadzhikistan, USSR, Nov., 1989.*
- Mathews, J. D., Y. T. Morton, Q. Zhou, "Tides and acoustic-gravity waves as observed in the motions of ionospheric E-region meteoric ion layers," *Int. Sym. on Mid. Atm. Studies, Dushanbe, Tadzhikistan, USSR, Nov., 1989.*
- Getman, V.S., J. D. Mathews, Y. T. Morton, Q. Zhou, R. G. Roper, "Observations of long-lived meteor trails at Arecibo using optical and radar techniques," *Int. Sym. on Mid. Atm. Studies, Dushanbe, Tadzhikistan, USSR, Nov., 1989.*
- Tong, Y., J. D. Mathews and W. P. Ying, "An upper E-region quarter diurnal tide at Arecibo?", *J. of Geophys. Res.*, V.93, No.A9, P10047-10051, 1988.

## INVITED PRESENTATIONS

- Morton, Y. T., "Evaluation of GPS Receivers," IEEE MTT Society International Microwave Symposium, San Francisco, CA, June 2006.
- Morton, Y. T., "Software GPS Receiver and Applications," Nanjing Univ., June, 2005.
- Morton, Y. T., J. Tsui, D. Lin, L. Liou, and Q. Zhou, "Integrating Beam Forming and A Software GPS Receiver," IEEE MTT Society International Microwave Symposium, Long Beach, CA, June 2005.
- Morton, Y. T., Q. Zhou, "Software-Based Global Positioning Systems Receiver and Applications," Miami University Research Advisory Council, April 2005.
- Morton, Y. T., "Software GPS Receivers and Applications," ECE Distinguished Speaker Seminar Series, Illinois Institute of Technology, Dec., 2004.
- Morton, Y., S. Campbell, J. Leonard, B. McNally, M. Stutzman, C. Korando, J. Macasek, C. Mantz, S. Miller, "The Miami Red Blade: An Autonomous Lawn Mower," IEEE Cinci. Chapter, Cincinnati, OH, Oct. 2004.
- Morton, Y. T., S. Campbell, J. Leonard, B. McNally, M. Stutzman, C. Korando, J. Macasek, C. Mantz, S. Miller, "The Miami Red Blade: An Autonomous Lawn Mower," ION Dayton Section, Dayton, OH, Sept. 2004.
- Zhou, Q., Y. T. Morton, "An overview of incoherent scatter radar study of the mesosphere and lower thermosphere," *5th Chinese Space Weather Conference, Wuyishan, China, Sept. 2004.*
- Zhou, Q., D. Janches, T. Nakamura, J. D. Mathews, Y. T. Morton, "UHF and VHF Meteor observations using the Arecibo and MU radars," URSI Annual meeting, Columbus Ohio, June 2003.
- Morton, Y. T., "Software GPS Receiver", Engineering Science Seminar, Embry Riddle Aeronautics University, Daytona Beach, FL, Feb., 2003.
- Morton, Y. T., "Modeling and Measurements of the Upper Atmosphere Electron Irregularities", Engineering Science Seminar, Embry Riddle Aeronautics University, Daytona Beach, FL, Feb., 2003.