

Arthur I. Zygielbaum

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Experience

2009 - Present: **University of Nebraska – Lincoln (UNL)**

- **2013 - Research Associate Professor, 2009 – Adjunct Associate Professor, School of Natural Resources**

2005 - 2009

PhD Student and Research Scientist, Geography, School of Natural Resources, UNL. Research area: remote sensing of water stress in vegetation.

1998 - 2005

Director, National Center for Information Technology in Education (NCITE), University of Nebraska-Lincoln

1968 – 1997: **Jet Propulsion Laboratory, Pasadena, CA**

Senior Member of the Technical Staff, Observational Systems Division; Senior Member of the Technical Staff, Office of the Director; Manager, Science Information Systems Office; Deputy Manager, Information Systems Division; Manager, Computer Science and Applications Section; Group Supervisor, Deep Space Tracking Systems Implementation; Electronic/Computer Engineer

Education

Doctor of Philosophy, Geography/Remote Sensing

- University of Nebraska-Lincoln, 2009

NASA Senior Executive Program

- Wallops Island Training Center, 1986.

Post-Graduate Courses in computer science and digital design

- University of Southern California.

Master of Science Electrical Engineering

- University of Southern California, 1975.

Bachelor of Science (Major: Physics, Minor: Mathematics)

- University of California, Los Angeles, 1968.

Other Experience

Committees and Professional Organizations

- Consulting Member and Member, NASA Aerospace Safety Advisory Panel, 2001-2003
- Member, National Research Council National Weather Service Modernization Committee, Dec., 1989 to Feb., 1996; Feb., 1998 to Feb., 1999. Chair, Automated Weather Interactive Processing System Panel; Advisor to committee, March, 1996 to Feb., 1998. Member, Road Map for the Future of the National Weather Service Panel, Nov., 1997 to Feb., 1999.
- Invited Participant, National Research Council Workshop on Complex Software Systems, 1989; proposed national agenda for software research.
- Program Chair, International Space Year (ISY) conference on Earth and Space Science Information Systems, Feb., 1992. “Kick-off” conference for ISY.
- Senior Member, IEEE, Computer Society; Member, Association of Computing Machinery; Member, American Geophysical Union; Member, American Association of Geographers.

Patents

- **#3,648,250**: Digital Video Display System; Zygielbaum, A., W.L. Martin, and A. Engle; **#3,648,356**: Computer Communications Link; Zygielbaum, A., W.L. Martin, and J.W. Layland; **#3,729,129**: Numerical Interactive Controller; Zygielbaum, A., and S. Broki; **#4,112,497**: Digital Demodulator and Correlator; Layland, J.W., W.L. Martin, A.I. Zygielbaum, R.M. Goldstein, and W.P. Hubbard.

Publications

- Over forty publications in refereed and non-refereed journals.
- Selected publications
 - * Nguy-Roberson, A.L. Zygielbaum, A.J. McMechan, G.L. Hein, S.N. Wegulo, A.R. Stillwell, T.M. Smith, Developing the framework for a risk map for mite vectored viruses in wheat resulting from pre-harvest hail damage, *Crop Protection* 89 (2016) 21-31.
 - * Wang, R., J. Gamon, R. Montgomery, P. Townsend, A. Zygielbaum, K. Bitan, D. Tilman, J. Cavender-Bares, Seasonal variation in the NDVI–species richness relationship in a prairie grassland experiment (Cedar Creek). *Remote Sens.* 2016, 8, 128.
 - * Rundquist, D., A. Gitelson, B. Leavitt, A. Zygielbaum, R. Perk, and G. Keydan, 2014, Elements of an Integrated Phenotyping System for Monitoring Crop Status at Canopy Level, *Agronomy*, 4:108-123, DOI: 10.3390/agronomy4010108
 - * Stilwell, A.R., G. L. Hein , A. I. Zygielbaum & D. C. Rundquist, 2013, Proximal sensing to detect symptoms associated with wheat curl mite-vectored viruses, *International Journal of Remote Sensing*, 34:14, 4951-4966.
 - * Zygielbaum, A.I., T.J. Arkebauer, E.A. Walter-Shea, D.L. Scoby, 2012, Detection and measurement of vegetation photoprotection stress response using PAR reflectance, *Israel Journal of Plant Sciences*, Vol. 60, 37-47. DOI: 10.1560/IJPS.60.1-2.37.
 - * Zygielbaum, A.I., A.A. Gitelson, T.J. Arkebauer, and D.C. Rundquist, 2009, Non-destructive detection of water stress and estimation of relative water content in maize, *Geophysical Research Letters*, 36, L12403, doi:10.1029/2009GL038906,2009.
 - * Melvin, M.J., A.I. Zygielbaum, D. Gutzmer, S. Rentschler, J. Bower, and K.G. Hubbard, 2008, Network requirements for sensor accuracy and precision: a case study to assess atmospheric variability in simple terrain, *International Journal of Climatology*, 28(2): 267-272.
 - * Zygielbaum, Arthur I., Editor, *Earth and Space Science Information Systems*, American Institute of Physics Press, new York, 1993, ISBN 1-56396-094-X.
- Selected conference presentations
 - * Walter-Shea, E.A., T.J. Arkebauer, A.I. Zygielbaum, A. Suyker, Diurnal Variation in Maize and Soybean Canopies and Implications for Remotely Sensed Biophysical Properties, Poster, AGU Fall Meeting, San Francisco, CA, December, 2016.
 - * Zygielbaum, A.I., T.J. Arkebauer, E.A. Walter-Shea, 2013, Chloroplast avoidance movement causes increasing PAR reflectance in water stressed plants and may distort biophysical estimates based on spectral indices, Oral Presentation, AGU Fall Meeting.

Awards

- * Four NASA Certificates of Recognition relating to patents.
- * Helios project Award for Exceptional Effort; NASA Certificate of Appreciation for high precision ranging enabling Voyager's navigation past Saturn to Uranus, Numerous NASA Mission Support & Group Achievement Awards.

Collaborators

- * John Gamon, Professor, Department of Earth and Atmospheric Sciences, University of Alberta
- * Anatoly Gitelson, Professor, School of Natural Resources, University of Nebraska – Lincoln
- * Elizabeth Walter-Shea, Professor, of Natural Resources, University of Nebraska – Lincoln
- * Timothy Arkebauer, Department of Agronomy and Horticulture, University of Nebraska – Lincoln
- * Richard Sincovec, Chair and Professor, Computer Science and Engineering, University of Nebraska—Lincoln