

Robert F. Austin, Ph.D., GISP

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PROFESSIONAL EXPERIENCE

Austin Communications Education Services, Incorporated, Clearwater, FL

June 2014-date: President and Principal Consultant. Responsible for GIS training, consulting, system design, marketing, product development, technology transfer, bid and proposal development, corporate management and contract employment.

City of Tampa, Tampa, FL

July 2007-May 2014 (Retired): Manager, Enterprise Applications Integration. Report directly to the City of Tampa CIO. Responsible for managing GIS, Web Services, Database Administration and Enterprise Content Management technical teams within the Department of Technology and Innovation. Also responsible for interaction with clients from other City of Tampa offices, departments and divisions, as well as GIS liaison with local county and municipal counterparts, state agencies and local utility companies for LUCA (2010 U.S. Census), data sharing and other functions. Managed creation of ITIL Service Catalog and Service Level Agreements. Participation in ITIL V3 implementation, Riverwalk Project, Enterprise Content Management, other programs. Managed two phases of IT staff consolidation resulting in net annual savings of \$2 million. Managed team winning 2007 Best of the Web award for cities over 250,000 in population. Program Manager for city-wide Novell-to-Microsoft conversion project and 2012 Republican National Convention situational awareness dashboard.

Michael Baker Jr., Incorporated, Alexandria, VA

December 2003-July 2007: Director of Business Development Geospatial Information Technology. Responsible for business development and marketing. Capture Manager for multiple programs, including Census 2010 projects, EAGLE and Alliant. Captured primary subcontractor position on Census Bureau GSS procurement (estimated value to Baker: \$42 million). Captured subcontractor position on Census Bureau FDCA procurement (estimated value to Baker: \$28 million). Captured subcontractor position on EPA Geospatial Blueprint Update project. Captured subcontractor position on SDSFIE (estimated value to Baker: \$4 million). Negotiated sub-contractor positions for Alliant (Raytheon) and EAGLE (Lockheed-Martin). Responsible for GIS consulting for selected clients, including AT&T, Southern Company, Verizon Business, EPA and SDSFIE. Security Clearance: Secret.

Austin Communications Education Services, Incorporated, Palm Harbor, FL

July 1991-November 2003: President and Principal Consultant. Responsible for GIS training, consulting, system design, marketing, product development, technology transfer, bid and proposal development, corporate management and contract employment. Clients included:

Alltel	Coastal Utilities	GTE
Andersen Kuala Lumpur	ComPlus	Incatel AS
Andrew Corporation	CSC Intellicom	ITC Service Group
Antigua Telephones (APUA)	Edmonton Telephones	Lambda Tech (co-founder)
AT&T	Enghouse Systems	LCTX
Barbados Telephone	Generation 5 Technology	MCI Communications
Baker Engineering	Geonex	Mercator Corporation
C3	GeoVision	Nevada Bell
Cadtel Systems	Greenhorne & O'Mara	Pacific Bell
Clarity International	GST Telecommunications	Price Technical Services

SaskTel
SNET
Southern Company

Qwest Communications
Sprint (United)
Telebras CPqD

Tensing-SKS BV
TIME Telekom
US Telephone Association

Management Contracts

In several cases, my technical and professional consulting work evolved into direct, term-employment management contracts:

Greenhorne & O'Mara (St. Petersburg, FL) – May 2002-June 2003. Department Head GIS. Responsible for department management, project management, marketing communications and client liaison. Security Clearance: Secret.

KNT Network Technologies (Duluth, GA) – November 2000-July 2001. Senior Director Business and Program Development. Responsible for technology assessment, strategic planning, market development and development of OSS product offerings

ComPlus (Nashville, TN) - July 1997-February 1999: Vice President, Corporate Development. Responsible for technology assessment, strategic planning, training, program development, consulting, system design, marketing, product development and corporate management. Senior member of team that increased annual revenue from \$16 million to \$43 million in 16 months.

Mercator Corporation (Hato Rey, PR) - August 1996-December 1996: President. Responsible for corporate management, training, marketing and consulting with the Government of Puerto Rico (Centro de Recaudación de Ingresos Municipales) and World Bank (Paraguay Division); (estimated value to Mercator \$23 million).

Andrew Corporation (Orland Park, IL and Moscow, Russia) - January 1993-September 1994: Director, Applications Engineering. Responsible for information systems design and development for several Russian-American joint telecommunications ventures. Systems designed and/or specified for purchase included office automation, international electronic mail, automated mapping/facilities management and multi-currency accounting. Also responsible for network product sales, new project bid preparation and on-going information systems support.

Expert Witness Testimony

Barker, Wilson Reynolds & Burke

PNG Telecommunications, Inc. d/b/a PowerNet Global Communications v. S&S Communications, U.S. District Court for the Southern District of Ohio (Western Division), Civil Action No. C-1-01-902.

King & Spalding LLP

Thoroughbred Technology and Telecommunications, Inc. v. Williams Communications, LLC, U.S. District Court for the Northern District of Georgia (Atlanta Division), Case Number 01-CV-1949-RLV.

Baystar Service Corporation/CDI Corporation

311 Park Place Boulevard, Suite 650, Clearwater, FL 34619 USA [CDI acquired Baystar in 1989.]

July 1989-July 1991: Vice President, Automated Mapping and Facilities Management Systems. Responsible for all aspects of corporate GIS activity. Clients included Advanced Computer Graphics, Ameritech Services, C3, CFW Telephone, Coastal Utilities, GeoTechnology International, GTE Data Services, GTE Florida, GTE Network Operations Planning, Lufkin-Conroe

Telephone Exchange, MCI, MSE Corporation, New England Telephone and Southwestern Bell Telephone.

September 1987-June 1989: Director, Automated Mapping and Facilities Management Systems. Responsible for digital cartography marketing, system designs, consultation and project management. Clients included AT&T-EDDS, GTE-Florida and MCI.

September 1985-September 1987: Computer Data Systems Consultant and Regional Manager, MCI. Responsible for hiring, salary assessment, and supervision of approximately 70 contract staff. As a consultant to MCI, responsible for defining, designing, and implementing a hardware, software, and data conversion system for automated mapping and facilities management; preparing standards and technical manuals for fiber optic outside plant engineering and construction.

Chicago Aerial Survey, Incorporated

2140 Wolf Rd., Des Plaines, IL 60018-1932 USA

June 1984-August 1985: Senior Staff Scientist. Project Manager for digital map conversion project for Southern Bell Telephone Company (PLRMS); managed several raster system projects including J.D. Irving and California Department of Conservation; prepared production reports, technical reports, proposals, and in-house training materials for digital cartography.

Geocator, Incorporated

412 1/2 W. Walnut, Columbia, MO 65201 USA

February 1978-May 1984: President. Industrial site analysis for state and local governments and private sector firms; developed site analysis and mapping applications on mainframes and microcomputers.

Other Communications Industry-Related Experience

Summers, 1969-1974: Telephone and CATV craft work, contracted by Harris-McBurney, Rollins Commserve, Ann Arbor Cable and Saginaw Cable. Work included aerial cable placement (Journeyman-B, buried cable placement, crew chief and installation).

ACADEMIC EXPERIENCE

Delta State University

Center for Interdisciplinary Geospatial Information Technologies, Cleveland, MS 38733

2014-date: Adjunct Faculty

University of Tampa

College of Business, Tampa, FL 33602

2008-2009: Adjunct Professor

Courses taught: Managing Value Through Information Systems & Technology (ITM 607)

Virginia Polytechnic Institute & State University

Urban Affairs and Planning Program, Alexandria, VA 22314

January 2007-May 2007: Adjunct Professor

Courses taught: Introduction to GIS (UAP 5114)

University of Phoenix-Tampa Campus

College of Information Science and Technology, Temple Terrace, FL 33637

March 2002-November 2004: Faculty

Courses taught: Network and Telecommunications Concepts I and II (NTC 360/NTC 410),

Technology Transfer in The Global Economy (TMGT 550), Networks/Data Communications I and II (TCM 537/TCM 538)

Florida Metropolitan University

Computer Information Systems Department, Clearwater, FL 33759
November 2002-2004: Advisory Committee Member

University of Missouri-Columbia,

Department of Geography, Stewart Hall, Columbia, MO 65211 USA
September 1977-August 1984: Assistant Professor [On leave: 1980-81]
September 1978-August 1980: Chairman of Department
Courses taught: Location Theory, Cartography, Quantitative Methods, Population Geography, Planning, Southeast Asia, World Regional Geography. Other duties included Faculty Council, 1982-1984 (Chair, Student Affairs Committee 1983-84); various university committees; co-sponsor, Geographic Resources Center (a remote sensing and mapping research facility)

Oxford Polytechnic (Oxford Brookes University)

Dept. of Social Sciences, Headington, Oxford, OX1 0BP United Kingdom
September 1980-May 1981: Senior Fulbright Fellow (Exchange Professor / Visiting Lecturer)
Courses Taught: Human Geography, Southeast Asia, Political Geography

Guest Lectures

Lawrence Technological University, 1992; Loughborough University of Technology, 1981; University of Oxford, 1981 (Visiting Senior Fellow); Center for International Briefing, 1980, 1981; University of Washington, 1978; Institute for Southeast Asian Studies, 1976

EDUCATION

Ph.D., 1977, University of Michigan, Ann Arbor, MI (Geography)
M.A., 1974, University of Michigan, Ann Arbor, MI (Geography)
B.A., 1972, University of Michigan, Ann Arbor, MI (Geography/Southeast Asian Studies)
Diploma, 1968, Southfield High School, Southfield, MI

CERTIFICATION

GIS Certification Institute – Certified GIS Professional (GISP) Number 46642, 2004-2008, extended 2008-2009; renewed 2009-2014; renewed 2014-2019

TECHNICAL TRAINING

Tampa Police Department Citizen's Police Academy, 2012
IS-700 National Incident Management System (NIMS), An Introduction, 2007
Introduction to ESRI ArcMap, 2007
Miller-Heiman Blue & Gold Training, 2004
Project Management Bootcamps I & II (PSMJ Resources), 2003
Microsoft Project '98 (New Horizons), 1999
Enghouse Systems Geonet Training, 1995
Andrew Corporation Mid-Range Products and Network Products Training, 1994
SUN Microsystems Seminar Series, 1990

DEWS AMS/GIS Operator Training, GeoVision, 1990
Utilities Facilities Management (FRAMME-SM), Intergraph, 1987
Basic Transmission Concepts, Austin Communications Education Services, 1987
Numerical Analysis of Remote Sensing Data, Purdue University, Laboratory for Applications of Remote Sensing (LARS), 1982
Short Course on Demography, National Science Foundation, 1977
Workshop in Photography, National Geographic Society, 1973
Post-graduate courses in mathematics and computer science, University of Missouri, 1977-84

INTERNATIONAL WORK EXPERIENCE

2001 China (business development)
1999 Mexico, Norway (business development)
1996 Malaysia, Thailand, Puerto Rico (consulting, project management, training)
1995 Malaysia, Antigua (consulting, project management, lecturing and training)
1994 Russia, Finland, United Kingdom, Ukraine, Colombia, Thailand (project management, consulting, lecturing and training)
1993 Barbados, Russia (consulting, lecturing and training)
1992 Australia, Brazil, Canada, New Zealand (consulting, lecturing and training)
1991 Australia, United Kingdom, Canada, Barbados (consulting, lecturing and training)
1980-81 United Kingdom, Netherlands (college lecturing)
1975-76 United Kingdom, Singapore, Malaysia, Brunei, Thailand (Ph.D. research)

LANGUAGE SKILLS

Thai – formal training, field practice, moderate oral and written skills
Malay/Indonesian – formal training, field practice, basic oral and written skills
Latin – formal training, basic written skills

PERSONAL COMPUTING SKILLS

Proficient in the use of office automation software (Word, Excel, Lotus 1-2-3, Access, dBase II, dBase IV, Project, Outlook, WordStar, WordStar 2000, VisiCalc, SuperCalc, Frontpage)
Proficient in use of presentation graphics software (PowerPoint, LViewPro, CorelDraw, PageMaker, Adobe, Picasa)
Proficient in database design for geographic information systems (multiple platforms)
Management and design knowledge of geographic information systems (Intergraph (IGDS/DMRS, FRAMME), ESRI (ArcMap), Enghouse (CableCad, Geonet), AutoDesk (Vision, REGIS, AutoCAD), Cadtel, Incatel)
Experienced in use of multiple development tools (Visual Basic, PowerBuilder, FORTRAN, SAS, Bricklin Demo)
Experienced in use of multiple operating systems (JCL, VMS, CMS, DOS (several), Windows (9x, NT, CE, XP, Vista), Mac OS)
Author of *Pangaea* (a business travel support program)
Design and test experience detailed in *Consulting Project Experience* section below

PROFESSIONAL ASSOCIATIONS

Association of American Geographers

Member, 1975-date; Chair, Southeast Asia Division, Asian Specialty Group, 1984-86

Geospatial Information & Technology Association (formerly AM/FM International)

Member, 1984-date; Publications Committee, 1986-87; Standards Committee, 1986-87; Conference Committee (Seminars), Conference XI, 1988; Education Chair, 1989; Conference Principal and Co-Chair, Conference XIII, 1990; Committee for Asia and the Pacific, Chair 1990-92; Annual Conference Chair, Conference XIV, 1991; Board of Directors, 1990-91; Australasian Conference Co-Chair, 1991; Life Cycle Seminar, AURISA 1992 (Gold Coast, Australia); Strategic Planning (Telecom) Committee, 1997-2000, 2003-2007; Federal Liaison Advisory Committee, 2004-date (Chair, 2005-2007); Board of Directors (At Large member), 2006; Board of Directors (At Large member), 2007 (reappointment); Board of Directors (At Large member), 2008 (reappointment); Board of Directors (Secretary), 2009; Past-President, Central Florida Chapter, 2010; President-Elect (January-July), President (July-December) and Board of Directors, 2010; President and Board of Directors, 2011; Past-President and Board of Directors, 2012; organized and/or chaired multiple seminars and panel discussions; representative to Federal Geographic Data Committee (FGDC) Steering Committee (2006-2007)

Institute of Electrical and Electronics Engineers

Member, 1987-1992; Senior Member, 1992-2014 (retired)

Malaysian Branch, Royal Asiatic Society

Life Member since 1978

National States Geographic Information Council

Associate Member, 2008-2014 (retired)

Urban and Regional Information Systems Association

Member, 2008-2014 (retired)

OTHER PROFESSIONAL ACTIVITIES

National Geospatial Advisory Committee (NGAC) - Appointment by U.S. Secretary of the Interior Ken Salazar, 2010

Member, 2010-2012; Chair, Broadband Mapping Sub-committee, 2010; NGAC Broadband Mapping Liaison to FCC and NTIA, 2011, 2012; Member, Geospatial Platform Sub-committee, 2010; Member, Innovation Strategies Sub-committee, 2011; Co-chair, National Address Database Sub-committee, 2012, Chair, Geospatial Strategy Sub-committee, 2012

Reappointment by U.S. Secretary of the Interior Ken Salazar, 2013

Member, 2013-2015

Chairman of NGAC, 2013, 2014, 2015

U.S. Department of Commerce, National Telecommunications and Information Administration, State Broadband Data and Development Grant Program, Broadband Mapping Program, Technical Reviewer, 2009

American Council for Technology (ACT) Industry Advisory Council (IAC) Sub-committees: Homeland Protection (2005-2006), Emerging Technologies (2006), Enterprise Architecture (2006), GIS Committee, IAC Homeland Security SIG, 2005-2006

Oversight Committee, GIS Certification Institute, 2005

Founding participant, GITA/AAG/Wharton School Geospatial Industry Leadership Roundtable, 2005-2006

Participant, HIFLD, 2005-2007

Advisory Board, International Society of Spatial Sciences (a division of Community Systems Foundation), 1995-present

Editorial Board, *Solstice*, 1990-present
Editorial Board, *Equinox*, 1989-present
Editorial Board, Institute of Mathematical Geography, 1986-present

AWARDS

1992 AM/FM International Speaker Excellence Award
1992 Who's Who in Emerging Leaders in America (first inclusion)
1991 Pe. Roberto Landell de Moura Medal, CPqD Telebras, Brazil
1991 Who's Who in American Business Leaders (first inclusion)
1990 Who's Who in The Computer Industry (first inclusion)
1990 Who's Who in The South and Southwest (first inclusion)

PUBLICATIONS

Books

GIS for Critical Infrastructure Protection (with D. DiSera and T. Brooks), Boca Raton: Taylor and Francis, 2015 (in preparation).

Practical Handbook of Digital Mapping: Terms and Concepts (Specialist Associate Editor) (with S.L. Arlinghaus, Editor-in-Chief, and W.C. Arlinghaus, W.D. Drake, and J.D. Nystuen, Associate Editors), Boca Raton: CRC Press, 1994 (ISBN 0-8493-0131-9).

Published Papers, Monographs and Book Chapters

"The Changing Geospatial Landscape: A Second Look," (with J. Sweetkind-Singer, D. DiSera *et al*), *National Geospatial Advisory Committee White Paper*, Washington, 2015.

<<https://www.fgdc.gov/ngac/meetings/december-2015/the-changing-geospatial-landscape-second-look.pdf>>

"Geospatial Data-Information-Knowledge-Wisdom Hierarchy," *Solstice*, Volume XXVI, Number 2, 2015 (December 21). <<http://www.mylovedone.com/image/solstice/win15/z-Geospatial%20DIKW%20-%20for%20SolsticeSA4.pdf>>

"A National Geospatial Strategy: Recommendations for the 2013-2016 Presidential Term," (with J Mahoney, J. Johnston, T. Gibbons *et al*), *National Geospatial Advisory Committee White Paper*, Washington, 2012. <<http://www.fgdc.gov/ngac/meetings/december-2012/NGAC%20Geospatial%20Strategy%20Paper.pdf>>

"Report on the Need for a National Address Database," (with E. Trobia, J Mahoney, T. Gibbons and National Address Database Subcommittee), *National Geospatial Advisory Committee White Paper*, Washington, 2012. <<http://www.fgdc.gov/ngac/meetings/december-2012/NGAC%20National%20Address%20Database%20Paper.pdf>>

"Guidelines for Geospatial Data Sharing," *Geospatial World Forum Proceedings*, Amsterdam, 2012.

- "Applications of Geographic Information System (GIS) Technology in the City of Tampa" (with K. Wright), *Geospatial World Forum Proceedings*, Amsterdam, 2012.
- "Inter-Agency Data Sharing - A Primer" (with L. Kurilla, C. Salas, J. Mahoney and T. Gibbons) *National Geospatial Advisory Committee White Paper*, Washington, 2011.
<<http://www.fgdc.gov/ngac/ngac-interagency-data-sharing-primer-june-2011.pdf>>
- "Best Practices For Local Government Geospatial Programs" (with B. Krucoff, J. Mahoney and T. Gibbons), *National Geospatial Advisory Committee White Paper*, Washington, 2011.
<<http://www.fgdc.gov/ngac/ngac-local-gov-gis-best-practices-paper.pdf>>
- "Southeast Asia: Historical Place Names Visualized in Google Earth" (with S.L. Arlinghaus), *Solstice*, XX: 2, December 2009 <<http://www.mylovedone.com/image/solstice/win09/Austin.html>> (Supplement to *A Historical Gazetteer of Southeast Asia*, Monograph No. 4, Institute of Mathematical Geography Monograph Series, Ann Arbor: Michigan Document Services, Inc., 1986).
- "An Industry in Transition: Highlights of the 2006-2007 Geospatial Technology Report" (with M.A. Stewart), *DistribuTech 2008 Conference Proceedings*, Tampa, 2008.
- "Yet, A Better Way To Conversion: The Open, Incremental, GIS Free Approach (with G.C. Magalhães), *Geospatial Information & Technology Association Conference XXX Proceedings*, San Antonio, 2007
- "TRL – The Real Landbase: Enterprise Applications and Data Distribution," (with L. Bunting and K. Smyth), *Geospatial Information & Technology Association Conference XXVIII Proceedings*, 2005.
- "Mapping the Future with Geo-Spatial Information Technology" (with A. Robertson), *Pittsburgh Engineer*, Spring 2004. <http://www.eswp.com/PDF/PEspring04_10-11.pdf>
- "Photogrammetry and Topographic Mapping," (with S.L. Arlinghaus and J. Bethel), Chapter 147 in *The Engineering Handbook 2nd Edition*, Edited by Dorf, R., Boca Raton: CRC Press, 2004.
- "Satellite Surveying," (with B.H.W. van Gelder), Chapter 149 in *The Engineering Handbook 2nd Edition*, Edited by Dorf, R., Boca Raton: CRC Press, 2004.
- "Enabling Mobile Mapping" (with A. Quartararo), *GIS@development*, February 2004, pp. 19-24.
<<http://www.gisdevelopment.net/magazine/gisdev/2004/feb/emm.shtml>>
- "LIDAR Applications in Telecom and Utilities," *The Future of Wireless: Business Strategies, Broadband Technologies and Network Operations*, International Engineering Consortium, 2003, pp. 169-173.
- "GIS in Oil and Gas Transport," *Business Briefing: Exploration and Production*, January 2003, pp. 56-58. <http://www.wmrc.com/businessbriefing/pdf/expl_prod_03/Pub/austin.pdf>
- "Cost Proxy Models in Rural Telephone Companies," *Solstice: An Electronic Journal of Geography and Mathematics*, Volume XIII, Number 2, December 2002.
<<http://www-personal.umich.edu/~sarhaus/image/solstice/win02/Austin.PDF>>
- "Disaggregation and Targeting of Universal Service Support" (with P.E. Childers), *Solstice: An Electronic Journal of Geography and Mathematics*, Volume XIII, Number 2, December 2002.

<http://www-personal.umich.edu/~sarhaus/image/solstice/win02/austin2/austin2.htm>

"Spatial ASP - Enabling Mobile Mapping," *Geospatial Information & Technology Association Conference XXV Proceedings*, 2002.

"Geographic Information Systems and the Telecommunications Bandwidth Explosion," *Conferencia Ejecutiva de Sistemas Integrados de Información (CESII) Conference Proceedings* (CD-ROM), Orlando, FL 1999.

"Strategic Benefits of GIS in the Telecommunications Industry: The Example of SBC Communications," *Proceedings of A Symposium in Honor of John Nystuen*, Ann Arbor, MI, 1999.

"GIS for Telecommunications: Learning Valuable International Lessons," *Conferencia Ejecutiva de Sistemas Integrados de Información (CESII) Conference Proceedings* (CD-ROM), Miami, FL 1998.

Tri-Service Facility Management Standards (TSFMS) (with J. Pitts) – *Communications Report*, Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Tri-Service CADD/GIS Technology Center, 1998. [Incorporated in Spatial Data Standard for Facilities, Infrastructure and Environment (SDFIE), formerly known as Tri-Service Spatial Data Standards (TSSDS)]

"Time Telekom's Network Inventory System: AM/FM/GIS in the Big Durian" (with Chin C.M.), *AM/FM International Automated Mapping/Facilities Management Conference XX Proceedings*, 681-690, 1997.

"Mapping Malaysia's Telecommunications Infrastructure: GIS at TIME Telecommunications" (with Chin C.M.), *GIS Asia Pacific*, 2:3, 34-38, 1996 (June).

"China: Spring Break '96," *KL American*, 24-27, 1996 (June/July).

"The Laws of Project Management for Automated Record Systems," *Geo Info Systems Magazine*, 4:4, 1995 (April).

"'Estado Del Arte' Y Tendencias De La Tecnologia SIG A Nivel Mundial" ("State Of The Art Of GIS Technology"), *Plan De Accion Para La Implantacion De Las Tecnologias -- SIG AM/FM -- En Colombia: Diagnostico Y Recomendaciones*, CINTEL Seminario Internacional Santiago de Cali, Agosto 31-Septiembre 1y 2 de 1994, 33-42 (digital publication), 1994.

"GIS for Fiber Loop Communications Systems: A Russian Case Study," *AM/FM International Automated Mapping/Facilities Management Conference XVII Proceedings*, 232-239, 1994; edited version published in *Intercarto Conference: GIS for Environmental Studies and Mapping Conference Proceedings* (Moscow State University), 79-83, 1994.

"Training Doesn't Cost: It Pays," *AM/FM International Automated Mapping/Facilities Management Conference XVI Proceedings*, 399-408, 1993.

"Principles of Ruggedization, or Field Access: The Last Piece in the Puzzle," *AM/FM International Automated Mapping/Facilities Management Conference XV Proceedings*, 51-60, 1992.

"Digital Maps and Data Bases Constructed From Cartographic Sources versus Mechanically Drafted Sources: A Perspective on Aesthetics versus Accuracy," *Solstice*, II: 2, 31-37, 1991 (December 21).

- "AM/FM Needs of the 1990's," *Telephony*, 220:11, 124-128, 1991 (March 18).
- "GEMS in the Pines: GIS at Lufkin-Conroe Telephone Exchange," (with P. Singletary), *Geo Info Systems Magazine*, 1:2, 22-29, 1991 (February).
- "AM/FM at Coastal Utilities: A Profile in Development," *Outside Plant Magazine*, 29-33, 1989 (November).
- "Data Bases As the Basis for Geographical Information Systems: A Perspective," *GIS/LIS '89 Conference Proceedings*, 123-133, 1989.
- "GIS/LIS in the Long Distance Telecommunications Industry," *Third International GIS/LIS Conference (GIS/LIS '88) Proceedings*, 266-272, 1988.
- "Praxis as Teratism in Digital Cartography: GIS and AM/FM for the Long Distance Telecommunications Industry," *American Congress on Surveying and Mapping 1988 Fall Convention Proceedings*, 198-205, 1988.
- "Some Recent Developments in AM/FM Systems for Long Distance Carriers," *AM/FM International Automated Mapping/Facilities Management Conference XI Proceedings*, 21-31, 1988.
- "Outside Plant Record Management For Fiber Optic Networks: The MIRACLES AM/FM Project at MCI," (with C.H. Sauer III), *AM/FM International Automated Mapping/Facilities Management Conference X Proceedings*, 17-27, 1987.
- A Historical Gazetteer of Southeast Asia*, Monograph No. 4, Institute of Mathematical Geography Monograph Series, Ann Arbor: Michigan Document Services, Inc., 1986. Available at: <http://www-personal.umich.edu/~sarhaus>.
- "Service Ace," [letter] *Telephony*, 210:5, 12, 1986 (February 3).
- "Raster/Vector Systems in a Production Environment," *URISA and Regional Information Systems Association Conference Papers*, 4, 203-211, 1985.
- "Making Maps with Databases," *Telephony*, 208:19, 34-39, 1985 (May 13).
- "Raster Systems in a Production Environment," *Design Graphics World*, 9:3, 10-15, 1985.
- "An 'Everyday Atlas'," *Journal of Geography*, 83:4, 173-174, 1984.
- "Measuring and Comparing Two-Dimensional Shapes," in Gaile, G.L. and Willmott, C.J. (editors), *Spatial Statistics and Models*, Dordrecht: D. Reidel Publishing, 293-312, 1984.
- Bibliography of Measures of Spatial Shape*, Vance Bibliographies No. P-1142 (Public Administration Series), Monticello, IL, 18 pp., 1983.
- "Reply To Phillips," *The Professional Geographer*, 35:2, 195-196, 1983.
- Cartography* (independent study course book, University of Missouri, Center for Independent Study), 1983.

- "A Definition and Estimate of Temporal Area," *The Professional Geographer*, 34:3, 297-304, 1982.
- "On Contiguity, Contact Number and Compactness (Reply To Boots and Blair)," *Area*, 14:2, 127-131, 1982.
- "Comment on 'Undocumented Migration from Mexico: Some Geographical Questions'," *Annals of the Association of American Geographers*, 72:4, 559-560, 1982.
- "The Compactness of Missouri's Counties," (with T. Dowell) *Transactions of the Missouri Academy of Science*, 16, 127-130, 1982.
- "The Shape of West Malaysia's Districts," *Area*, 13:2, 145-150, 1981.
- "Measures of Population Concentration," *Oxford Polytechnic Geography Discussion Paper No. 15*, 33 pp., 1981.
- "Comments on Sopher's Measure of Disparity," *The Professional Geographer*, 32:3, 370-371, 1980.
- A Directory of Missouri Data Sources* (senior author and project director), Jefferson City: Missouri Office of Administration, 318 pp. (NSF ISP78-03201/NSF7901), 1979.
- Revised and edited seven chapters in *Missouri Corporate Planner*, Jefferson City: State of Missouri, Division of Commerce and Industrial Development, 1979.
- "Spatial Concentration and Productivity in the Brewing Industry of Missouri," *Transactions of the Missouri Academy of Science*, 12, 137-143, 1978.
- Industrial Location Study, "Automobile Factory," Missouri Division of Commerce and Industrial Development, Jefferson City, MO, 202 pp., 1978.
- Seven confidential industrial location studies for the Missouri Division of Commerce and Industrial Development: Prospect No. 32 (factory), 86 pp.; Prospect No. 34 (foundry), 57 pp.; Prospect No. 35 (factory), 54 pp.; Prospect No. 38 (factory), 56 pp.; 3 additional shorter studies, 1978.
- "Cohort Survival Ratios and the 1970 Age Structure of Sarawak's Population," *Borneo Research Bulletin*, 9:1, 16-22, 1977.
- "Some Demographic Characteristics of the Iban Population of Brunei, Part II: 1960-1971," *Brunei Museum Journal*, 4:1, 1-6, 1977.
- Iban Migration: Patterns of Mobility and Employment In the 20th Century*, Ph.D. dissertation, Department of Geography, University of Michigan, 1977. (University Microfilms: UM77-17945) [Abstracted in *Dissertation Abstracts International*, 38:3, 1654-A and *Borneo Research Bulletin*, 10:1, 49-50.]
- "Recent Malaysian Government Publications Dealing with Population in Borneo," *Borneo Research Bulletin*, 8:1, 18-22, 1976.
- "Some Demographic Characteristics of the Iban Population of Brunei, Part I: 1947-1960," *Brunei Museum Journal*, 3:5, 64-69, 1976.

"Some Notes on the Role of the Iban in the North Borneo Police Force," *Sarawak Museum Journal*, 45, 315-316, 1976.

"A Review Article on the Iban of Sarawak," *Southeast Asia, An International Quarterly*, 3:3, 905-917, 1974.

(Book review) West Malaysia And Singapore: A Selected Bibliography, by Karl Pelzer, *Southeast Asia, An International Quarterly*, 3:2, 797-798, 1974.

HANDBOOKS, MANUALS, AND TECHNICAL REPORTS

Greenhorne & O'Mara *APFO CLU Digitizing Project Management Plan*, 2003.

KNT Network Technologies *Outside Plant Engineering Handbook*, 2000.

Engineering Evaluation of Cost Proxy Models For Determining Universal Service Support: Hatfield Model Version 5.0, Benchmark Cost Proxy Model Version 3.0 And Hybrid Cost Proxy Model 2.0, January 14, 1998, *Ex Parte* Filing on behalf of United States Telephone Association to the Federal Communications Commission, FCC Dockets Nos. 96-45, January 15, 1998.

Comment on the Hybrid Cost Proxy Model for Determining Universal Service Support for Non-Rural Carriers: The CENBLOCK and FEEDDIST Software Modules, December 2, 1997, *Ex Parte* Filing on behalf of United States Telephone Association to the Federal Communications Commission, FCC Dockets Nos. 96-45 and 97-160, December 3, 1997.

Comments On An Ex Parte Presentation By AT&T and MCI to the FCC Common Carrier Bureau March 18, 1997, *Ex Parte* Filing on behalf of United States Telephone Association to the Federal Communications Commission, FCC Docket No. 96-45, April 23, 1997.

Engineering Evaluation of Cost Proxy Models for Determining Universal Service Support: Hatfield Model 3.0/3.1 (Principal Investigator), *Ex Parte* Filing on behalf of United States Telephone Association to the Federal Communications Commission, FCC Docket No. 96-45, April 9, 1997.

Engineering Evaluation of Cost Proxy Models for Determining Universal Service Support: Benchmark Cost Proxy Model (Principal Investigator), *Ex Parte* Filing on behalf of the United States Telephone Association to the Federal Communications Commission, FCC Docket No. 96-45, April 9, 1997.

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CONSULTING PROJECT EXPERIENCE

Project details available upon request