

Curriculum Vitae

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MICHAEL KENNEDY, AICP*

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Principal Positions:

Associate Professor, Department of Geography, University of Kentucky, 1991 to present. (Currently on Phased Retirement – teaching Fall Semesters only)

Associate Professor, College of Architecture (UKCA), University of Kentucky, 1973 to 1990 (with leaves as noted below).

Director of the Computer-Aided Design Studio, UKCA, 1973-1989.

Visiting Professor, Department of Computing Science, Simon Fraser University, Vancouver, British Columbia, Canada, Summer 1986, Fall 1983.

Visiting Professor, Departments of Planning, University of North Carolina, Winter 1980; University of Florida, Spring 1980.

* American Institute of Certified Planners. For a discussion of experience related to urban and regional planning please see the Appendix.

Systems Development Consultant to the Arab-American Oil Company, Saudi Arabia, arranged through RICE Center, Houston, Texas, 1977.

Director, Automated Systems Research, University of Louisville, Urban Studies Center, January 1974 to July 1975 (half-time).

Assistant Professor, Assistant to the Dean, College of Architecture, University of Kentucky, 1967 to 1973.

Research Associate, Computing Center; Part-time instructor in Computer Science, University of Kentucky, 1965-67.

Assistant Director, Computing Center, and Instructor in Business, Western Carolina University, 1963-65.

Programmer, Computing Center, University of Tennessee, 1960-63.

Cooperative Engineering Student, Oak Ridge National Lab (Y-12), Departments: Health Physics, Nuclear Research, Instrument Engineering. 1958-1960.

Books, Articles, and Reviews:

The Global Positioning System and ArcGIS, Third Edition (ISBN: 9781420087994), July 2009.

Introducing Geographic Information Systems with ArcGIS: A Workbook Approach to Learning GIS, Second Edition (ISBN: 978-0-470-39817-3), May 2009.

Book Review: *Georeferencing: The Geographic Associations of Information*. Linda L. Hill. Cambridge, MA: The MIT Press, 2006. xiii and 260 pp. *The Professional Geographer*, Volume 60, Issue 2, May 2008.

Introducing Geographic Information Systems with ArcGIS, published by John Wiley and Sons, 624 pages, August 2006 (ISBN 0-471-79229-2).

The Global Positioning System and GIS: An Introduction, Second edition, 375 pp. Taylor & Francis, 2002, two printings (ISBN 0-415-28608-5).

The Global Positioning System and GIS: An Introduction, 291 pp. Ann Arbor Press, six printings, 1996.

Book Review: *Geographical Information Systems—Principles and Applications*. Maguire, Goodchild, and Rhind, eds., *Annals of the Association of American Geographers*, Vol. 84, No. 1, March 1994.

"*Logic, Planning and Computers: ProLog.*" *Journal of Planning Education and Research*, Volume 7, Number 1, Fall 1988, pp. 35-46.

Structured PL/ZERO plus PL/ONE, 2nd Edition. With Martin B. Solomon. 538 pp, 1988. (Previous versions totaled 8 printings.)

Understanding and Using CoaLex. U.S. Department of Interior (USDI), Office of Surface Mining, 100 pp., 1985.

Pascal: Program Development with TIPS (Ten Instruction Pascal Subset) and Standard Pascal, with Martin B. Solomon. Prentice-Hall, 544 pp., 1982.

"Information Systems for Land Use Planning". With Charles R. Meyers and Neil Sampson. Chapter 36 in *Planning the Uses and Management of Land*. American Society of Agronomists, 1980.

Spatial Information Systems: An Introduction. Assisted by Charles R. Meyers. Commissioned by the U.S. Department of Interior (USDI), Office of Land Use and Water Planning. Published by the Urban Studies Center, University of Louisville, 97 pp., 1978.

"Avoiding System Failure" (in Automated Spatial Information Systems) with Charles Guinn. Supporting report, USDI, Office of Land Use and Water Planning, commissioned by Argonne National Laboratory. 1976.

Ten Statement Fortran Plus Fortran IV, 2nd Edition. With Martin B. Solomon. Prentice-Hall, 579 pp., 1975, (10 printings).

"Architecture, Computers and Economies of Scale", in *Matrix*, publication of the College of Environmental Design, Virginia Polytechnic Institute, 1972.

Proceedings of the Kentucky Workshop on Computer Applications to Environmental Design, Editor, 317 pp., 1971.

"EPS-A Computer Program for the Evaluation of Problem Structure". With Charles F. Davis, III. Chapter 12 of *Emerging Methods in Environmental Design and Planning*, MIT Press, 1970.

"On Obtaining Correct Input: A New Approach", *Communications of the Association for Computing Machinery (CACM)*, Volume 12, Number 7, June 1969, pp. 409-411.

Ten others.

Other Creative Work:

GPS mapping for a biological diversity project, Pilgrim, Michigan.

GPS mapping for an archeological excavation, Calabria, Italy.

Computer programs dealing with architecture, information retrieval, numerical analysis, translation of natural language, student scheduling, systems ecology, spatial data, combinatorial mathematics, data correction, graphics, simulation, and other areas.

Developed the Dot-Probability Paradigm for computer storage of Geographic or spatial information. Description in thesis (see Educational Background).

Defined five artificial computer languages: (1) The Ten Instruction Pascal Subset (TIPS), (2) Ten Statement Fortran (TSF), and (3) Structured PL/ZERO. (These are subsets of Pascal, Fortran IV, and PL/ONE used as beginning teaching languages for education in algorithmic problem solving; TIPS and Structured PL/ZERO were developed with Martin B. Solomon. These languages use existing compilers.) (4) Environmental Sketches in Perspective (ESP6). (A graphics language for generation of perspective drawings, developed with Charles F. Davis III.) (5) Pattern Generation Language (PAGAN). (A graphics language for teaching relationships between symbolic and graphical representation.)

Invented the VOR-LOCATER, a navigation aid for airplane pilots using the VHF Omnidirectional Range. Computer and accompanying text book sold approximately 12,000 units over 25 years. (Dennis Marshall assisted in the graphic design.)

Video tape:

Conversational Computing with Martin B. Solomon, University of Kentucky, 1970.

Video tapes:

Ten Statement Fortran, University of Kentucky, 4 half-hour lessons, 1969.

Coined (I believe) the term "Call for Participation" (as differentiated from "Call for Papers"). Term is now widely used for conferences in newly emerging fields in which more discussion and fewer formal presentations are desired. 1969.

Panels, Papers and Lectures:

Embedded Metadata – Quality Control with the Dot Probability Paradigm and ArcQC. Paper and presentation at the Environmental Systems Research Institute (ESRI) annual conference, San Diego, 1999.

Short Courses: GPS & GIS, ESRI Conferences, 1998 & 1999. San Diego, CA

"The Dot-Probability Paradigm for the Storage of Spatial Data." Paper and presentation at the Environmental Systems Research Institute (ESRI) annual conference, Palm Springs, May 1996. With Patricia Bomba.

"Integrating GPS with GIS." Paper and presentation at the ESRI annual conference, Palm Springs, May 1995.

"Fuzzy Polygons." Paper and presentation at the ESRI annual conference, Palm Springs, May 1995. With Tom Poiker.

Lecture – "Geographic Information Systems," colloquium, Department of Physics, UK, 1994.

Lecture – "Geographic Information Systems," colloquium, Center for Computational Sciences, UK, 1993.

Lecture – "Three Tools for Designing Sustainable Cities." UK Undergraduate Studies Program Symposium on Sustainable Cities. Spring, 1990.

Taught week-long course on ARC/INFO GIS to computing center staff, University of South Carolina, Columbia. Summer 1990.

Paper – "Introducing CAADD." American Collegiate Schools of Architecture, Regional Conference, Lexington, Kentucky, Fall 1988. (Presented; also in Proceedings.)

Lecture – "Mathematical Bases of the Golden Section," Lecture Series, College of Architecture, University of Kentucky, Winter 1988.

Paper – "The Initial Start: Beginning CAADD (Computer-Aided Architectural Design and Drafting) for the Brand New Student," Association for Computer Aided Design in Architecture (ACADIA) Conference, Fall 1987, Raleigh, N.C. (Presented; also in Proceedings.)

Lecture – "Spatial Data and Dots," Chr. Michelsen Institute, Berge, Norway, Summer, 1985.

Lecture – "The Dot-Probability Paradigm for Spatial Data," Simon Fraser University, Dept. of Computing Science, Burnaby, B.C. Canada, Fall 1983.

Lecture – "Computers, Spatial Information, and Planning," Department of Planning, University of British Columbia, Vancouver, B.C. Canada, Fall 1983.

Lecture – "Spatial Information Systems." Universidad de Buenos Aires, Facultad de Arquitectura y Urbanismo, two presentations, April 1983.

Lecture – "Elements of Geographic Information Systems." Universidad Nacional de Mar del Plata, Facultad de Ingenieria, Argentina, April 1983.

Lecture – "Making a Computer Believe It's a Map." College of Architecture, University of Florida, 1980.

Lecture – "Geographic Data Processing." Kentucky Data Processing Association, Natural Bridge State Park, 1980.

Lecture – "Future Basis for Spatial Planning: Computers or Maps." Planner's Forum, University of North Carolina, Chapel Hill, 1980.

Lecture – "Geographic Information Systems." To the National Conference of the American Society of Agronomy, Muscle Shoals, Alabama, 1979.

Paper – "Gender Antonym Replacement Technique," with Kristin Valentine, Southern Speech Communication Association Conference, Atlanta, 1978.

Symposium – Geographic Information Systems, sponsored by the Urban Studies Center for the Kentucky State Government, Discussion Leader, 1978.

Paper – "Symbols, Graphics, and Architectural Education: the PAGAN Experience," ACCM-IEEE Design Automation Conference, New Orleans, 1977. Proceedings.

Panel – Urban and Regional Information Systems Association (URISA), "Report on the Information Handling Guidebook Series" of U.S. Department of Interior, Office of Land Use and Water Planning, 1976.

Panel – Governor's Conference on the Environment (Kentucky), "Spatial Data Coordination," 1976.

Governor's Design Assembly – session chairman, Information and Design, 1976.

Paper – International Symposium on Remote Sensing, University of Michigan, 1975, with Charles Guinn, who made presentation.

Paper – Urban and Regional Information Systems Association, "Spatial Data Information Systems: Approaches to Integrity and Utility" (co-author: Charles Guinn) Seattle, Washington, 1975.

Lecture – State University of New York, Potsdam, "Teaching the First Computer Language: the Subset Approach", 1973.

Symposium Chairman – Fourth Annual International Environmental Design Research Association Conference, "For the Environment: Major Thrusts in Computing Activity." Also, Workshop Chairman, "Computer Aided Design." Held at Virginia Polytechnic

Institute and State University, 1973. Proceedings (*Environmental Design Research*, Volume 2) by Wolfgang Preisler.

Nine others.

Educational Background:

M.S. with Honors, University of Louisville, 1978. Interdisciplinary degree in system science, community development, computer science. Thesis: *Aiding Environmental Cognizance: A Proposed Artifact for a Large Millerian Organization with Territory*, 72 pages, under the direction of systems theorist James Grier Miller.

Graduate work in mathematics, statistics, and numerical analysis, University of Kentucky, 1965-67.

B.S., Engineering Physics, University of Tennessee, 1963.

(Please note that I do not have a Ph.D. I make this point to avoid embarrassment both to myself and to those who may assume I have a doctorate and discover later that I do not. I graduated from university in the early 1960's when good Ph.D. programs in computer science were scarce; I preferred to work in computing rather than obtain a Ph.D. in another discipline and I have been otherwise occupied since then.)

Honors:

"A Teacher Who Made a Difference" from UK College of Education, 2008

Honored for Distinguished Service and Outstanding Contributions as a member of the University of Kentucky Board of Trustees. July 2002 – June 2005.

Fellow: Robert Maynard Hutchins Center for the Study of Democratic Institutions, Santa Barbara, California, Spring 1982.

Citation: Special Recognition Award for 1979 Comprehensive Plan/Growth Management System, by the Mayor of Lexington, Kentucky.

Member: Phi Kappa Phi

Member: Pi Mu Epsilon (Mathematics Honorary Society)

Lecturer: Association for Computing Machinery, National Lectureship Program, 1972-1974

Visiting Scholar: Virginia Polytechnic Institute and State University, College of Design, one week, 1972

Society Memberships:

American Institute of Certified Planners (AICP).

American Planning Association (APA). Division: Information Systems.

American Association of University Professors (AAUP).

Association for Computing Machinery (ACM). Special interest groups: computers and design, computer graphics, computers and society.

Association of American Geographers (AAG)

Teaching: (*indicates current or recent past assignment)

*Spatial Data: Sources, Characteristics, Problems, and Uses (GEO 309)

*Introduction to Geographic Information Systems (GEO 409G)

Applications of Geographic Information Systems (GEO 509)

Introduction to Urban and Regional Planning (GEO 285)

Computer Cartography (GEO 506)

Computer-Aided Architectural Design (UK: ARC 950)

Symbols and Graphics: Automatic Manipulation (UK: ARC 101)

Theory of Living Systems (with Joseph Engleberg) (UK: Graduate Seminar 600)

Special Problems in Computer Applications (UK: ARC 963, ARC 964)

Simulation of Urban and Regional Environments (UK: ARC 963, ARC 964)

Interactive Computer Graphics Seminar (UK: Computer Science 472)

Numerical Analysis (UK: Math 438)

Algorithmic Language Programming (UK: Computer Science 220, course director, two years.)

Assembly Language Programming

Other teaching and lectures—systems modeling, communications, Professional practice, computer graphics.

Organized and directed the Summer Lecture Series in Computing for the University of Kentucky Computing Center, 1966.

Contributions to GIS courses elsewhere while on leave: Department of Computing Science, Simon Fraser University, Vancouver, British Columbia, Canada, Fall 1983, Summer 1986. Department of Planning, University of North Carolina, Winter 1980. Department of Planning, University of Florida, Spring 1980.

Professional:

Organized the Faculty Interest Group on Geographic Information Systems (IG-GIS) at UK. More than 75 faculty from 35 departments participated.

Referee, *Journal of Planning Education and Research*.

Task Force on Spatial Data, Co-chairman, convened at the request of Governor Julian Carroll of Kentucky to study feasibility of a statewide Spatial Information System, 1976-1978.

Solar Energy Steering Committee (Statewide), College of Engineering, University of Kentucky, 1975-1976.

Technical Steering Committee Member, Land Use Inventory/Data Handling Project, Department of Interior, Office of Land Use and Water Planning, and Argonne National Laboratory, 1974-75.

Proposal Reviewer, National Science Foundation

Reviewer,
Computing Reviews, Association for Computing Machinery.

Reviewer, *Journal of Planning Education and Research*.

President of the Kentucky Chapter of the Association for Computing Machinery, 1970-72.

Conceived, organized, and conducted the Computer Applications to Environmental Design Workshop, sponsored by the University of Kentucky and the Graham Foundation for the Advanced Studies in Fine Arts. Seventy-five papers were given, one-hundred thirty people attended the three day workshop in Spring 1970 in Lexington.

Partner in Davis-Kennedy, Consultants, 1968-71.

Publisher's referee for several books in the computer science and environmental design areas.

Associated Collegiate Engineers (ACE) Board, Nuclear Engineering Undergraduate Representative, 1961-1963.

Consulting Clients:

Ryley, Carlock, and Applewhite, Phoenix, Arizona 85004 (Expert Witness, 2009)

HOWREY LLP, Washington, D.C. 20004 (Expert Witness, 2006)

Environmental Systems Research Institute (ESRI), Redlands, CA (several occasions)

U.S. Dept. of Interior (USDI), Office of Surface Mining, Washington, DC

Oak Ridge National Laboratory, Geographic Data Systems Group, Computer Sciences Division, Oak Ridge, TN

NUS Corporation, Rockville, MD

U.S. Department of Interior, Office of Land Use and Water Planning

RICE Center, Rice University, Houston, TX

Argonne National Laboratory, Environmental Systems Division

Various Architecture Firms in Kentucky

Dean of Admissions and Registrar, University of Kentucky

Boards of Education: Atlanta, GA; Ashville, NC; Louisville, KY.

Grants and Contracts:

Preparation of a textbook on the Introduction to Geographic Information Systems. ESRI, Inc. \$5000 (grant, not advance). 2001.

Trimble Navigation, Limited: \$7,000, in Global Positioning System equipment. (1995 & 2001).

The Dot Probability Paradigm for the Storage of Spatial Data. NASA contract through the Center for Mapping, The Ohio State University, \$16,000, 1994 to 1997.

Educational materials for obtaining data from the Global Positioning System and integrating it with data in a Geographic Information System. Environmental Systems Research Institute, \$5,000, 1994.

GIS software (ARC/INFO, DigiCAD, FMS/AC, SPANS) from several corporations, 1990,1991: \$44,000.

IBM, Instructional Computing Equipment, 1987: \$22,500.

U.S. Dept. of Interior, Office of Surface Mining, for development of training materials of CoaLex, a Lexis-based information retrieval system, 1984-85: \$10,000.

Skok Systems, Hardware and CAD software matching grant, 1983: \$40,000.

Foundation for the Advancement of Computer-aided Education, for development of the Apple Perspective Drawing Program, 1981: \$7,000.00.

National Science Foundation Project at Oak Ridge National Laboratory, Geographic Data Systems Group, Computer Science Division. Prepared draft of project summary document, 1980: \$8,000.

Preparation of Guidebook for States on Information Handling for Critical Areas Planning, 1975: \$4,200.00

Fair Market Value of Housing in Anchorage, Kentucky by automated methods, 1974: \$9,500.00

Digital Equipment Corporation, for development of graphics applications and software for GT-40 intelligent graphics terminal, 1973: \$9,100.00.

Environmental Studies Division, Environmental Protection Agency for organization of Environmental Studies Subcenter for EPA Region IV. River Basin Model Urban Simulation Game, 1972: \$5,000.00

Graham Foundation for Advanced Studies in the Fine Arts, for Workshop On Computer Applications to Environmental Design, 1970: \$3,000.00

University and Public Service:

Reviewer for *The Professional Geographer*

Member, UK Faculty for the Environment (current)

Co-Chair of the Central Kentucky Civil Liberties Union (CKCLU), 2007 to present. (CKCLU is affiliated with the American Civil Liberties Union (ACLU).)

Science Advisory Committee, Tracy Farmer Institute for Sustainability and the Environment (current).

University of Kentucky Board of Trustees, Elected Faculty Trustee, July 2002 through June 2005. Elected to the Executive Committee, September 2004. Board committees: Academic Affairs, Nominating, Student Affairs, Ad Hoc Compensation Committee.

Community Columnist for the Lexington Herald-Leader, 2004

University Senate Council, 2000 to June 2005.

University Senate. 1996-7, 1999 through June 2005.

President, UK Chapter of the American Association of University Professors (AAUP) 1992-3, 1994-5, 1999-2002.

Lexington Community College Ad Hoc Advisory Committee on Geographic Information Systems. 1996.

Developed a proposal for an academic program in urban and regional planning. Convened an unofficial committee and later persuaded the University to appoint a formal ad hoc committee. An undergraduate program was proposed. It awaits a better financial climate. 1979 to 1981.

Task Force on Growth Planning, City of Lexington; convened by the Mayor and the Urban County Council to study population growth options, 1977 to 1979.

Governmental Options, Co-chairman. (Initial step in the merger of the City of Lexington and the County of Fayette.)

Various University committees, various College committees, various Geography Department committees.

APPENDIX

Summary of Urban and Regional Planning Experience

Statement regarding Focus

My planning experience has not been typical. My concern has been with the development of information to support the planning and decision-making process. This development has taken three forms: (1) the application of automated (computer-based) information handling techniques to planning, (2) the organization and dissemination of information about these and other techniques, and (3) the advocacy of proper governmental decisions based on better information.

In terms of research, I am particularly interested in refining and implementing a paradigm I developed for the manipulation of spatial data. I believe my approach will allow for the efficient storage of spatial data of all types, for the quick manipulation of those data – particularly with respect to overlaying – and easy use by planners through the artificial intelligence (AI) language ProLog.

Below I list most of the urban and regional planning activities with which I have been involved.

Activity 1: UK Department of Geography

I am an associate professor in the Department of Geography. My assignments are to teach geographic information systems (GIS), other courses that combine planning and computers, and to do research in the GIS field. I am also responsible for advising on the purchase of hardware and software to support the GIS program.

Activity 2: UK College of Architecture, Computer Aided Design Studio

From 1973 to 1990 I was Associate Professor at the College of Architecture at the University of Kentucky. Until 1989, when I left administrative work to have more time for research, I was Director of the College's Computer Aided Design Studio. A portion of my time has been spent on the development and teaching of computer-graphic and mathematical tools, some of which relate to site and city planning. The predominant research project dealt with the most important technical issue (in my view) of the use of computers in land use planning: the development of a comprehensive computer storage paradigm for spatial information. The result of this project was a prototypical computer-graphics software system and a report, "The Dot Probability Paradigm for Storage and

Handling of Spatial Information." Both my teaching and research attempted to span the spectrum from "data as you find it" to "information designed for decision makers."

Activity 3: Teaching Planning (1980)

I served as Visiting Associate Professor at two schools of planning: University of North Carolina at Chapel Hill and University of Florida in Gainesville. The courses I taught emphasized development of information for decision-makers through the use of Spatial (Geographic) Information Systems. The classes explored the budding capacity of the computer to combine social, economic, physical, and political characteristics over the spatial field. The premise was that the computer is a tool which can increase the comprehensive nature of the planning process and improve the level of confidence with which decisions are made.

Activity 4: Writing

In addition to publications listed elsewhere in this summary, I wrote, with Charles Meyers and Neil Sampson, Chapter 36 of *Planning the Uses and Management of the Land*. The chapter, on the subject of spatial information systems, appeared in the monograph, published in 1979. I have also completed a summary of techniques of spatial information systems for regional planning for the Geographic Data Systems Group of Oak Ridge National Laboratory. I am presently working on a text book on the subject for planners.

Activity 5: Mayor's Task Force (1978-80)

I was a member of the Mayor's Advisory Task Force on Growth Planning. The Task Force developed an update to Lexington's Growth Planning System and produced the basic recommendation for the 20-year comprehensive plan required by Kentucky law. Other members of the Task Force were Urban-County Council Members, Planning Commission Members, and citizens from several sectors of the community. My involvement over the thirty months included the entire planning process for the unique Blue Grass/Horse Farm/Lexington region which was experiencing a high rate of population growth and an even higher rate of land conversion. The Task Force was a working body; it dealt with detailed planning (in a few instances) as well as major policy issues. I wrote significant portions of the "Goals" section of the Plan, met with citizen's groups, and became involved with both the technical and political aspects of the project.

Activity 6: Governor's Task Force on Geographic Data (1977-78)

I served as Co-chairman of the Commonwealth Task Force on Geographic Data. This Task Force was convened at the request of then-Governor Julian Carroll of Kentucky.

Its mission was to make recommendations on coordination of the procurement, storage, and use of spatial data for planning by Commonwealth agencies and Area Development Districts. Members included those from the cabinets of Natural Resources and Environmental Protection, Transportation, Development, Commerce, and from the Office for Local Government. The Task Force was especially concerned with the duplication of effort due to the emergence of spatial information mini-systems and with problem that the existence of such mini-systems reduced the availability of data to some planners. The Task Force designed a survey instrument to determine the existence of, need for, and use of spatial information by departments and agencies connected with the Commonwealth. The Task Force had considerable effect in terms of exposing high-level state officials to the possibilities and pitfalls of new approaches.

Activity 7: Review Consultant, ARAMCO, Dhahran, Saudi Arabia with the RICE Center for Design and Environment (1977)

I was asked to observe the implementation of a RICE-Center-developed computer system to enable ARAMCO (The Arab-American Oil Company) to predict its community development needs as it made large increases in oil production. I traveled to Dhahran and met with officials of ARAMCO and RICE Center. The Community Development Computer Model was successfully installed and several years later was helping that nation cope with fluctuating oil production requirements.

Activity 8: Consultant, Office of Land Use and Water Planning, U.S. Department of Interior (1976)

I formulated the results of a \$450,000 project on Information/Data Handling for Land Use Planning. This involved both the construction of a written document, now available as *Spatial Information Systems: An Introduction* (written with Charles Meyers) as well as the development of a theoretical framework within which to understand the then-budding phenomenon. The document discussed the state-of-the art of automated techniques in regional planning. The project involved a description of the principles involved in the processing of existing data sources, recurring data sources (e.g., LANDSAT), and data acquisition projects into information usable by state and Federal agencies for resource allocation and management. The intent of the document is to display both the theoretical and practical applications of computers as generators of spatial information.

Activity 9: Director, Information Systems Research, Urban Studies Center, University of Louisville (1974-75)

The Urban Studies Center is a University organization which provides planning services, based on research, to local, state, and federal government agencies. I was involved in several projects in addition to research on spatial information systems.

(a) A computerized, community-development model for Louisville, Kentucky. Required was the construction of a tool which would allow in-depth planning in all areas of governmental concern based on past requirements, assessment of met and unmet needs, community perception of needs, population change (by cohort survival), sophisticated but "locally explainable" mathematical techniques, and fiscal constraints – both capital and operating.

(b) A project to determine the causes for the failures of significant numbers of state sponsored geographic information systems. The resulting document, co-authored with Charles Guinn, is entitled: *Avoiding System Failure: Approaches to Integrity and Utility*, and is part of the Department of Interior Guidebook Series on Geographic Information Systems for Critical Areas Planning. The project was done under contract with the Energy and Environmental Systems Division of Argonne National Laboratory. I was project director.

(c) Tax base determination and real property reassessment for Anchorage, Kentucky. This community was faced with the problem of new state restrictions on real property taxation together with the belief by its citizens that no new assessment (the first in decades) could be done impartially. We used a "locally explainable" multiple regression technique; we determined the relevant factors both mathematically and by discussion with citizens, administrators, and elected officials. I was project director.

Activity 10: Technical Steering Committee Member, U.S. Department of Interior (1974-75)

The duties of the Steering Committee were to construct the theoretical framework for, and to monitor, two large projects related to Areas of Critical Environmental Concern. Implicitly the Task Force was to aid the Department of Interior in developing strategies, as the lead agency, for the administration of the Land Use and Policy Assistance Act, then before Congress.

Activity 11: Assistant Professor, School of Architecture, University of Kentucky

(a) I developed computer-based site planning models for instruction and practical use. Those which achieved national recognition (of a sort) were TYPEMIX and BUBBLE. BUBBLE was used as the basis for general site planning and conflict resolution in the design of the campus of a proposed Inter-American School for Business Administration at Transylvania University.

(b) During this period I felt the need for a dialogue among planners and architects who were making use of the computer as a tool for environmental design. With the aid of the Graham Foundation for the Advanced Study in the Fine Arts, the University conducted a nationally attended *Workshop on Computer Applications to Environmental Design*. I

conceived and directed the 130 person "workshop" and compiled the *Proceedings* which were distributed widely.

(c) I was the Administrator of a grant from the Environmental Protection Agency, which designated the University as the EPA Region IV repository and training agency for an urban simulation game: The River Basin Model(RBM). I "taught" the planning exercise three different semesters to an average of 60 students each. A round of RBM was played each week, simulating a year's life in two communities within a hypothetical river basin. Students took on roles such as mayor, tax assessor, landlord, labor leader, in the three sectors: governmental, private, and social. The decisions the students made, frequently after intense interaction with other players, were submitted to a computer under control of the River Basin Model software, produced impacts on the community, thus forming the initial conditions for the next round of play.

(d) I was co-chairman and co-founder of an organization named *Governmental Options (GO)*. GO was responsible for the initial steps in the ultimate merger of the County of Fayette and the City of Lexington, Kentucky. The work of the organization involved discussions with the state legislators who presented the enabling legislation, meetings with city and county officials and citizen groups, presentation of the petition for merger, and development of strategies to mollify the special interest groups whose purposes were not served by the merger. The merger succeeded.

(e) Together with Charles Davis I developed a computer program for the evaluation of problem structure (EPS). A description of the purpose of this program, theoretical context, and results appears as Chapter 12, co-authored by Davis and Kennedy, of the book *Emerging Methods in Environmental Design and Planning*, edited by Gary Moore, published by MIT Press, in 1970.

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