DR. MYRON A. CALHOUN
Associate Professor
Computer Science Department
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

Education:

1961	AA		Graceland College	Lamoni, IA
1963	BS	Electrical Eng.	Univ. of Kansas	Lawrence, KS
1964	MS	Electrical Eng.	Colorado State Univ.	Ft. Collins, CO
1967	PhD	Electrical Eng.	Arizona State Univ.	Tempe, AZ

Grants:

1971 Man-machine communication via programmable tone generators attached to computers ($300) Bureau of General Research, KSU.

1971 Music generation with a computer/ARP synthesizer interface ($1,700) Bureau of General Research, KSU.

1973 Digital computer architecture laboratory ($1,340) Bureau of General Research, KSU.

1973 Electronic control unit for cassette recorders ($675) Bureau of General Research, KSU.

1975 Development of a low-cost hardware monitor ($29,696) U.S. Army Research Office (jointly with V. Wallentine).

1977 Functionally Distributed Computer Systems Development: Software & Systems Structure ($190,000) U.S. Army Research Office (jointly with V. Wallentine, W. Hankley, and F. Maryanski).

1979 Oscilloscopes, frequency meters, terminal equipment, readouts, etc. ($15,509) solicited from various industrial companies for use in C.S. Dept's. micro-lab.

1982 Collage of projects ($500) Bureau of General Research

Publications, Papers, and Reports:

"Electricity as It Affects Our Modern Homes and Farms," First Place, Florida Statewide 4-H Club Public Speaking Contest, 1955.

"A Pseudo-Pulse Emission for the Amateur Bands Below 2.3 GHz," First Place IEEE Student Paper Contest, Undergraduate Division, Region V, 1963.

"Construction and Testing of IOD Translation Store Current Servo," Case 39873, Bell Telephone Laboratories, Holmdel, NJ, 1963.

"Cauer Synthesis by Digital Computer," Proc. GET Conf., Scottsdale, AZ, April, 1965.

Machine-independent Assemblers for Computing Systems. Ph.D. Dissertation, Arizona State University, Tempe, AZ, July, 1967.

"Meta-Assembly Made Easy," IEEE Region VI Conf., Portland, OR, May, 1968.

"SYMBOL--Large Experimental System Exploring Major Hardware Replacement of Software," with others, Proc. SJCC, Atlantic City, NJ, May, 1971.

"SYMBOL Hardware Debugging Facilities," Proc. SJCC, Atlantic City, NJ, May, 1972.

"Computer Instrumentation of SYMBOL," Proc. Third Texas Conf. on Computing Systems, Austin, TX, November, 1974.

"A Design Automation System and Its Uses," MAE-CON, Kansas City, MO, November, 1974.

"The (Semi) Automatic Testing Languages for SYMBOL," Missouri Symposium on Advanced Automation, Columbia, MO, April, 1975.

"A System for Digital Design and Simulation," with J. Scott Vance, Sixth Annual Pittsburgh Modeling and Simulation Conference, April, 1975.

"A Mini-Computer Based Distributed Data Base System," Proc. NBS-IEEE Trends & Application Symposium: Micro & Mini Systems, May, 1976 (jointly with F. Maryanski, P. Fisher, V. Wallentine, and L. Sernowitz); CS 76-11.

"Functionally Distributed Computer System Development: Software & Systems Structure," Progress Report, December, 1976 (jointly with V. Wallentine, Wm. Hankley, G. Anderson, and F. Maryanski); CS 77-04.

"Distributed Data Base Management Using Minicomputers," Infotech State-of-the-Art report "Mini's versus Mainframes," February, 1978 (jointly with F. Maryanski, P. Fisher, and V. Wallentine).

"The KSUBUS - A Functional Description," January, 1977; CS 78-01.

"The KSUBUS - A Detailed Scription," January, 1977; CS 78-02.

"Resistance-Controlled Audible Continuity Tester," Electronics Test magazine, April, 1980, page 21.

"A Shared-Peripheral Network for a Micro-Computer Development Laboratory," MAE-CON, Kansas City, MO, October, 1980.

"Dungeons and Dragons Dice Simulator for the KIM-1," COMPUTE! magazine, June, 1981, pp. 145-146.

"Inexpensive Automatic Send/Receive Changeover Relay," Ham Radio magazine, May 1982, p. 40.

Interests:

My major interests (and expertise) lie in the design and development of hardware, both digital and otherwise, and the application of this hardware to the solution of "real-world" problems. I hesitate to call these "research" interests, but would say instead "research AND development."

In particular, I am interested in:

Computer Systems--
- Digital Logic Design
- Computer-Aided Design
- Computer Architecture
- Hardware Design/Development
- Application Programming

Electrical Engineering
- Radio Transmitting and Receiving Equipment

Micro-Computer Systems--
- Peripheral Interfacing
- Application Programming

I am currently working on three small projects:

COMPUTER-ASSISTED COMMUNICATION FOR THE PHYSICALLY HANDICAPPED: An attempt to provide computer-assisted typewriting, document storage and retrieval, and speech synthesis for those physically-handicapped persons who still retain some muscle control somewhere. Later "add-on" features will include remote control of household electrical appliances, telephones, etc.

COMPUTER-/REMOTELY-CONTROLLED ROBOT: An attempt to use a micro-computer to provide "proportional" control, with feedback, of a remotely-controlled robotic device, using VERY INexpensive radio transceivers.

LOCAL-AREA NETWORK RELIABILITY: An investigation into the reliability of a local radio-frequency network operating in an electrically noisy (i.e, real-world) environment using an amplitude-modulated asynchronous protocol on those aforementioned very INexpensive radio transceivers!

Not only are these all within my interest areas of "designing, developing, and applying," but they are also somewhat interrelated in that they all use interconnected digital and RF hardware to solve an interesting problem.

MAARTEN VAN SWAAY
Professor
Computer Science Department
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

Education:

1953	Candidaat	Univ. of Leiden, the Netherlands
1956	Ph.D., Physical Chem.	Princeton University
1956	Drs., Chemistry	University of Leiden

Teaching and Interests:

Laboratory Computer Applications and Interfacing
Analytical Instrumentation
Assembly Language Programming (Applications and System Components)
Micro-Computer Applications and Interfacing
System-Level and Appl. Programming, PDP-11, MACRO, RT11 Software
System-Level and Appl. Programming, PDP-8, PAL8, OS/8 Software
Design and Construction of Laboratory Equipment
Short Courses in Micro-Computer Appl. for Industrial Audiences

Publications:

D.W. Juenker, M. van Swaay and C.E. Birchenall, "On the Use of Palladium Diffusion Membranes for the Purification of Hydrogen," Rev. Sci. Instr., 26, 888 (1955).

M. van Swaay, "Some Aspects of Palladium-Hydrogen Systems," Ph.D. Thesis, Princeton University, August, 1956.

M. van Swaay andd C.E. Birchenall, "Permeability and Diffusion of Hydrogen Through Palladium," Trans. AIME, 218, 285 (1960)

M. van Swaay and R.S. Deelder, "Trace Analysis with a Rotating Hanging Mercury Drop," Nature, 191, 241 (1960).

M. van Swaay, editor: "Gas Chromatography" 1962, Butterworths, London 1963.

M. van Swaay, "The Design of an Automatic Absolute Flow Meter for Gas Chromatography," J. Chromatog., 12, 99 (1963).

M. van Swaay, "A Fraction Collector for Distillation Columns Operating at Reduced Pressure, "Rev. Sci. Instr., 35, 164 (1964).

M. van Swaay and R.F. Lolley, "A Simple Constant-Flow Device for Use in Titrimetric Analysis," J. Chem. Ed., 42, 381 (1965).

M. van Swaay, "Coulometry," Instrumental Analysis, Chapter 14, J.F.J. Krugers and A.I.M. Keulemans, Ed., Elsevier, New York, 1965.

M. van Swaay and J.R. Bacon, ":A Septum-Less Injection System for Use in Gas Chromatography," J. Chromatog., 965).

M. van Swaay, "Study of Reaction Kinetics from Broadening of Chromatographic Elution Peaks," Advances in Chromatography, J.C. Giddings, Ed., Vol. 8, 1969.

M. van Swaay, "The Control of Temperature," J. Chem. Educ., 46, A565 (1969).

B.A. Cunningham, D.L. Roerig and M. van Swaay, "Solid-State Controller for Fraction Collectors, " Chemical Instru., 2, 405 (1970).

M. van Swaay, S.H. Ediz and H.D. McBride, "Square-Wave Operation of a Thermal Conductivity Detector," Chemical Instru., 3, 299 (1972).

D.E. Bartak, H.K. Hundley, M. van Swaay and M.D. Hawley, "A Function Generator for Electroanalytical Experiments," Chemical Instru., 4, 1 (1972).

E.M. Winkler and M. van Swaay, "An Introduction to Micro-Electronics," J. Chem. Ed., 6, A325, A363, A394 (1973).

M. van Swaay, "A Practical Potentiostat-Coulometer for the Student Laboratory and for Routine Research Use," J. Chem. Ed., 55, 1 (1978).

P.J. Marcoux, M. van Swaay, D.W. Setser and L.G. Piper, "Vibrational Relaxation of CO^+ (A^2), CS(A^1) and C_2(A^3Hg) in Helium," J. Phys. Chem. 83, 3168 (1979).

M. van Swaay and D.H. Lenhert: "Fundamentals of Microcomputers," Carnegie Press 1982.

DR. RODNEY M. BATES
Assistant Professor
Department of Computer Science
Kansas State University
Manhattan, KS 66506
Office Tel. (913) 532-6350

Education:

1967	BS	Electrical Engineering	Kansas State University
1968	MS	Electrical Engineering	Kansas State University
1971	PHD	Electrical Engineering	Kansas State University

Publications (papers and reports):

"Multidimensional Binary Fourier Representation," Record of Second Southeastern Symposium on Systems Theory, Gainsville, FL, March 1970. N. Ahmed, R. M. Bates, and K. R. Rao.

"Multidimensional Bifore Transform," Electronics Letters, Vol. 6, No. 8, April 1970. R. M. Bates and N. Ahmed.

"A Power Spectrum and Related Physical Interpretation for the Multidimensional Bifore Transformation," Proceedings of the Symposium on Applications of Walsh Functions, Washington, DC, April 1971. R. M. Bates and N. Ahmed.

"A Pascal Prettyprinter with a Diffferent Purpose", SIGPLAN Notices, Vol. 16, No. 3 (March 1981), pp. 10..17

"Has SIMULA Really Missed the Boat?", SIMULA Newsletter, vol. 9, No. 4, (November 1981) pp. 3..4

Grants:

Three Faculty Research Awards from KSU Graduate School: $2000 for 1979/80, $1900 for 1980/81, and $1500 for 1981/82 Research Activities

Pascal source text formatter program developed

Bootstrap of Euclid compiler to Interdata 8/32, first phase complete, second phase in progress

Work on high level language support of concurrency, without building the synchronization technique into the language, in progress

Work on automatic generation of recursive descent syntax error recovery completed, writing not begun.

Design of a recovery mechanism for distributed transaction processing completed, writing in progress

Characterization of integrated transaction processing operating systems completed, writing in progress

Research Interests:

My principle research interest is in the design of programming languages. This also extends to other "languages" not normally

viewed as such and to all forms of user interfaces.

My current particular approach is to develop linguistic support for portable operating systems. Language design I am working with will provide abstraction mechanisms which allow a programmer to define and implement concurrency systems in the high-level language. This means that concurrency need not be built into the language and that the designer of an operating system, rather than the language design, can choose what concurrency system he desires. On the other hand, the abstraction features of the language allow the compiler to provide the same degree of protection against programming errors as current languages with built-in concurrency.

My long-term plans for this work include completion of the language design, implementation of the language, and writing of trial concurrency systems in the language. These will be used to replace the kernel of existing concurrent languages, and existing and new concurrent programs will then be tested. Finally, porting of such programs will be done to verify the usefulness of the approach.

The abstraction features I am developing for this work also have much broader applicability in a variety of programming problems. I also plan to explore some of these, to demonstrate the generality of the abstraction features.

I am also interested in office automation, particularly systems which support transaction processing. This is, in part, a problem in user interface design. I have done preliminary work in this area in a former position. I would like to develop this into a system design and implement the system, using the language developed by the aforementioned efforts.

I am interested in a variety of related areas, primarily in translator design and operating system design, and system architecture and their integration.

DR. DAVID A. GUSTAFSON
Assistant Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

Education:

1967	BS	Mathematics	University of Minnesota
1969	BS	Meteorology	University of Utah
1973	MS	Computer Science	University of Wisconsin
1979	PhD	Computer Science	University of Wisconsin

Teaching and Interests:
Software Engineering
Operating Systems
Data Base Management Systems
Computer Networks
Software Engineering
Program Verification Methods
Protection Structures

Publications (papers and reports):

David A. Gustafson, "Set Evaluation," Ph.D. Thesis, January 1979, University of Wisconsin-Madison.

Meals, Randall and David A. Gustafson, "An Experiment in the Implementation of Halstead's and McCabe's Measures of Complexity", Proc. of S.E. Standards Application Workshop, San Francisco, August 18-20, 1981.

Gustafson, David A., "Control Flow, Data Flow and Data Independence", Sigplan Notices, October 1981.

Arronson, David B. and David A. Gustafson, "HLSEW Screen Editor", KS-CS Tech. Report CS 81-07.

Vestal, Daniel R. and David A. Gustafson, "An Inter-Computer Communications System for a Personal Computer", KS-CS Tech. Report CS 81-08.

Gustafson, David A., "Assigning Costs to Flow Graph Nodes", Submitted for publication.

Gustafson, David A., "A Model for Halstead's Length", Submitted for publication.

Gustafson, David A., "Productivity as a Constraint for Putnam's Software Cost Estimation Model", Submitted for publication.

Research Interests:

1. Software Complexity Metrics
   Individual metrics can be developed to selectively support particular concerns of a particular development environment. Basic research into metrics and metric evaluation is desirable.

2. Software Reliability Measurement and Prediction
   A methodology for reliability measurement and prediction in a particular development environment can be developed. Basic research into this area is desirable.

3. Theory of Software Testing and Evaluation
   A testing methodology including the IEEE standard could be developed for individual environments. Basic research into testing theory is also desirable.

(Jointly with W. Hankley)

1. The Next Generation Editor
   Editors have shown a progression from line-oriented editors to screen-oriented editors to syntax-oriented editors. The next logical step in this progression is an editor that helps the user with the program development, as well as the syntax of the programming language. This editor could be called a pdl-oriented editor. It could store the program as a tree of pdl statements and expand these statements into either pdl statements or target code. The user could generate this tree in a top-down fashion. This would support the top-down development of the program. The editor would be two-dimensional in nature; the user could either move within a level of the tree by moving the cursor up or down or the user could change levels in the tree by moving off the screen to the left or right. The editor could, at discretion of the user, use a library of predefined modules to complete the branch of the tree whenever the name of a predefined routine is used in the tree.

2. The Fifth-generation Editor
   The progression of the editors can be followed past the pdl-oriented editor to a very sophisticated program development system that provides various aids to the program development process. Included in these aids could be assertions checkers, test-case analyzers, type-checkers, paradigm checkers that compare current specifications with common paradigms, and style checkers. All of these tools would operate on the source code as the user is entering the code. The advice would be immediately available to the user.

DR. ROGER T. HARTLEY
Assistant Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

Education:

1969	BA	Physics	New College, Oxford, U.K.
1974	PhD	Cybernetics	Brunel University, U.K.

Teaching and Interests:

Cybernetics
Artificial Intelligence
Knowledge Engineering
Expert Systems
Logic
Data structures, programming languages, architecture
Artificial Intelligence
Knowledge engineering, expert systems

Publications (papers and reports):

Hartley, Roger T., ",Cybernetic Thinking and Share Price Prediction" PhD thesis, Brunel University, 1974.

Hartley, Roger T., "Program COIN - A New Approach to Investment Analysis in A Handbook for Management of Cybernetics", ed. F.H. George, 1975.

Hartley, Roger T., "A Fault Finding Aid Using a Content Addressable File Store" (with T. R. Addis), TN 79/3 International Computers Limited, 1979.

Hartley, Roger T., "How Expert Should an Expert System Be?", Proceedings 7th IJACI, University of British Columbia, Vancouver Canada, pp. 862-867, August 1981.

Hartley, Roger T., "The Competent Computer", MCSG/6 Man-Machine Studies Group. Brunel University, UK, January 1982.

Hartley, Roger T., "Competence Modeling as a Methodology for Computer Systems", submitted to CACM, March 1981.

Hartley, Roger T., "A Conceptual Basis for Expert Systems Methodology", Proceedings of Expert Systems 82, jointly sponsored by ACM-IEE-SPL, Brunel University, U.K. September 1982.

Hartley, Roger T. and L. Johnson, "A Short Course in Epistemology and Knowledge Engineering", MCSG/13 Man-Machine Studies Group, TR13, Brunel University, U.K.

Pashtan, Ariel and Roger T. Hartley, "A Competence Measure for Operating Systems", submitted to IEEE Computer, September 1982.

Hartley, Roger T., "Computer Fault-finding Through Knowledge Engineering", submitted to IEEE Computer, October 1982.

Research Interests (jointly with Clifford G. Stark):

Artificial intelligence research in the department falls into three areas: (1) major projects, (2) student projects, and (3) the LISP system.

1. Major Projects

A. Expert Planning Systems with Performance and Instructional Modes

The aim of the project is to design an expert planning system capable of general application. The system will be empty of application-specific knowledge (c.f. the EMYCIN concept), but will be able to accept knowledge relevant to any chosen specific domain. The planning system will then be able to operate within that domain. It is intended that the system also be used for instructional purposes: an expert system which can perform competently in some area should be capable of using its stored general knowledge for teaching. This may be accomplished by substituting for its normal direct-performance mode of use, the performance of a "higher-level" instructional system which takes the expert planning knowledge as its subject-matter. In order to implement a system with these twin goals, a uniform representation for knowledge in the areas of general planning, specific planning-application domains, and the general domain of instruction will be developed. This implementation phase will be facilitated by development of an appropriate description language. The use of such languages not only helps efficient system development but can also aids future maintenance of the system by its users. The project has been favorably received as an informal proposal by ARI.

B. Computer-aided Student Advising

A computer system is currently being designed and built to advise students on course, curriculum and career choices. The project falls into two parts: the purely mechanical book-keeping needed to keep track of a student's progress and using this information to offer proper advice according to the student's needs and wishes. Each student will keep his or her own records on a floppy disk while the central system will store course and career information common to all students. Through a dialogue with the student, the system will make inferences and offer suggestions according to the content of the dialogue.

2. Student Projects

Several graduates are engaged in projects, reports or theses in the area of AI. The topics include: theorem proving; knowledge representation (frames, production system, description language); and natural language (discourse understanding and ATNs). In addition, there are students designing an expert system in the areas of analysis of psychological tests and diagnosis of skin disease.

3. The LISP System

We have over the last year vastly improved the LISP interpreter on the computing center's 3033 lookalike. Apart from adding several modern constructs (catch and throw; I/O streams and operating system calls; extensions to cond, eval and apply; upper and lower case), there are now LISP packages to simulate the major features of MACLISP, to implement the system in Artificial Intelligence Programming and to provide a complete filing system. There is also a structure editor with a trace/break package incorporated.

DR. RICHARD ALAN McBRIDE
Assistant Professor
Computer Science Department
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

Education:

1968	BA	Mathematics	Univ. of Colorado at Boulder
1974	MSCS	Computer Sci.	Southern Illinois Univ. at Carbondale
1980	PHD	Computer Sci.	Kansas State University

Publications:

McBride, R.A. "A Generalization of the Hu-Tucker Algorithm to m-ary Trees," Master's Thesis, Southern Illinois University, 1974.

Wallentine, V. and R. McBride, "Concurrent Pascal--A Tutorial, "Kansas State University, Department of Computer Science, Technical Report CS76-17, 1976.

Wallentine, V. E., W. J. Hankley, and R. A. McBride, "SIMMON--A Concurrent Pascal Based Simulation System," Kansas State University, Department of Computer Science, Technical Report CS79-05, 1978.

Unger, E. A. , R. A. McBride, J. Slonim, and F. J. Maryanski, "Design for Integration of a DBMS into a Network Environment," in Proc. Sixth Data Communications Symposium, IEEE, N.Y., 1979.

McBride, R. A., "Modelling Techniques for Data Communication Protocols," Ph.D. Dissertation, Kansas State University, Department of Computer Science, 1980.

Slonim, J., V. Wallentine, P. Fisher, L. J. MacRae, and R. A. McBride, "OFFICE/NET: The Backbone of the Automated Office," Electronic Office: Management and Technology, Auerbach Publishers Inc., Pennsauken, N.J., April 1982, 004.0001.013, pp. 1-16.

Slonim, J., L. J. MacRae, R. A. McBride, F. J. Maryanski, E. A. Unger, and P. S. Fisher, "A Throughput Model: Sequential vs. Concurrent Processing," Information Systems, Pergamon Press Ltd., to be published in Vol. 7, 1982.

Hankley, W. J. and R. A. McBride, "Discrete Simulation with a Concurrent Base Language", Proceedings of 1981 Summer Simulation Conference, Reston, VA., July, 1981.

Research Interests:

My current and proposed research deals with the representation of information. I have been engaged in the modeling and verification of data communication protocols to ensure that data transfers can occur correctly in a distributed environment. Also, I am actively pursuing an interest in using electronic business forms that will serve both as an information template and a high-level communications protocol.

Such electronic forms provide a convenient way for casual users, e.g. office workers, to interact with such data processing tools as a data base. Further, these forms can be used to enforce restrictions on the manner in which both a particular form and its data fields are accessed.

A major area of interest for me is office information systems since these systems integrate both data communications and electronic forms. Presently tools, such as forms editors and electronic calendar systems, are being developed which are necessary in the automated office.

I am also looking into the extension of the CODASYL Common Operating System Command Language to a distributed environment. It is expected that in such an environment the flow of information can be represented and controlled by a command language program.

DR. ROGER V. TERRY
Assistant Professor
Computer Science Department
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

Education:

1981	Ph.D.	Soil Physics	Kansas State University
1979	M.S.	Soil Physics	Kansas State University
1976	B.S.	Agronomy/Spanish	Brigham Young University

Grants:

1983 Corn production decision aid and microcomputer education for farmers ($290,000) from Kellogg Foundation. Jointly with Fred Sobering, Stephen Welch, and Fred Posten.

Publications (papers and reports):

Terry, R. V., W. L. Powers, R. V. Olson, L. S. Murphy, and R. M. Rubison. 1981. The effect of beef feedlot runoff on the NO_3-N content of a shallow aquifer, J. of Environ. Qual. 10:22-26.

Olson, R. V., R. V. Terry, W. L. Powers, and C. W. Swallow. 1982. Disposal of feedlot lagoon water by irrigating bromegrass: I. Crop removal of nitrogen, J. of Environ. Qual. 11:262-272.

Olson, R. V., R. V. Terry, W. L. Powers, C. W. Swallow and E. T. Kanemasu. 1982. Disposal of feedlot lagoon water by irrigating bromegrass: II. Soil accumulation and leaching of nitrogen, J. of Environ. Qual., Accepted.

Powers, W. L., R. V. Terry, G. W. Wallingford, and L. S. Murphy. Fate of nitrogen from manure disposal, National Conf. on Disposal of Residues on Land, St. Louis, MO, September 13-15, 1976.

Terry, R. V., P. S. Fisher. 1981. Moving Toward Construction Project Optimization--A Look at the Interactive Model Approach and Other Alternatives. Section 11-B. Kansas Department of Transportation, Topeka, Kansas.

Terry, R. V. W. L. Powers, R. V. Olson, L. S. Murphy. 1980. Monitoring Nitrate-Nitrogen at a Beef Feedlot Runoff Disposal Site. Project Completion Report (00952), Agricultural Experiment Station, Manhattan, Kansas.

CLIFFORD GERARD STARK
Instructor
Computer Science Department
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

Education:

1976	BA	Music (Honours)	York University, Canada
1978	BA	Computer Science	York University, Canada
1978 -		Third Year Ph.D.	University of Edinburgh

Teaching and Interests:
Artificial Intelligence
Semantic Theory
Structural Psychological Theories of Action
Artificial Intelligence
Programming Languages
Operating Systems

Research Interests:
See "Research Interests" under Roger Hartley.