American College of Medical Informatics Fellows and International Associates, 2003

Edward H. Shortliffe, MD, PhD

Patricia Abbott, RN, PhD

Dr. Patricia Abbott trained in nursing at the University of Maryland and, after practicing for a few years, developed a growing interest in informatics. She obtained her master’s degree in nursing informatics in 1992 and went on to earn a PhD in information systems in 1999. Even before completing her PhD, she had become a well-known and contributing member of the informatics community while serving as a clinical specialist for information systems at the University of Maryland School of Medicine. She subsequently joined the faculty of nursing, first at Maryland and, since 2003, at Johns Hopkins University, where she is Director of the World Health Organization (WHO)/Pan American Health Organization (PAHO) Center for Information Systems in Nursing Care.

Dr. Abbott has been among the first nurses to apply data-mining techniques to the field of nursing, exploring existing databases in long-term care to understand better the factors that contribute to patient outcomes. She has extended her preliminary work into the patient safety arena, ensuring strong informatics content in programs funded by the Health Resources and Services Administration (HRSA) and Agency for Healthcare Research and Quality (AHRQ).

Dr. Abbott is recognized internationally for her leadership in preparing scholars and practitioners in nursing informatics. She has also led the development of the American Nurses Association (ANA) Standards of Practice for Nursing Informatics. She has worked tirelessly as a member of the leadership team, Nursing Informatics Working Group, as our country’s representative to the International Medical Informatics Association (IMIA) Nursing Special Interest Group, and as a member of the Editorial Board of JAMIA. She also serves on the AMIA Board of Directors. Dr. Abbott possesses a unique talent for articulating effectively the disciplinary contributions to a multidisciplinary organization.

Patricia Abbott brings to the American College of Medical Informatics (ACMI) a gifted, hard-working academic whose abilities are commensurate with the depth of knowledge she possesses in emerging dimensions of our field.

James G. Anderson, PhD

A Johns Hopkins-trained engineer with degrees in chemical engineering, operations research, and industrial engineering, Professor Anderson received his PhD in education and sociology at Hopkins in 1966. He joined the faculty at Purdue University in 1970 and has been a full professor of medical sociology there since 1974. Since 1994, he has also codirected the Rural Center for AIDS/STD (Sexually Transmitted Disease) Prevention, a joint effort between Purdue and Texas A&M Universities.

Dr. Anderson’s work has examined the social, organizational, and ethical issues that determine success or failure of medical informatics applications. He has also developed and demonstrated a number of quantitative methodologies (including computer simulation, social network analysis, clustering, and structural equation modeling) that can be used to assess the effectiveness and outcomes of informatics applications. The three books that he has edited or authored in the field of medical informatics have been among the first comprehensive efforts to explore social, organizational, and ethical issues, and evaluation methods in informatics. The results of his research have had a practical impact on policymakers. For example, the Nursing Stress Scale he developed has been used widely in the United States and in at least ten other countries. It has been translated and used in Japan as well.

Professor Anderson has been a frequent contributor to AMIA conferences, and the excellence of his work has been recognized through awards from AMIA, its predecessor the American Association for Medical Systems and Information (AAMSI), and the Association of American Medical Colleges (AAMC). He has also provided leadership by helping to organize and by chairing two AMIA Working Groups (the Ethical, Legal and Social Issues and the Quality Improvement Working Groups).

ACMI recognizes Dr. Anderson for his expertise and influence in medical informatics and his significant contributions to our understanding of the social and organizational
influences that characterize the success or failure of innovations in our field.

Jeffrey S. Blair, MBA

After earning an undergraduate degree in management engineering at Rensselear and an MBA from Northwestern University’s Kellogg School of Management, Jeff Blair began a 30-year association with IBM Corporation. His move to health care came in the 1980s, accelerated by his role on the IBM advisory team that provided input on a Council on Competitiveness report known as “Highway to Health: Transforming U.S. Healthcare in the Information Age.” This led to his assumption of key roles in IBM strategic planning, management of their marketing arm for clinical information systems, and to program management in their medical lexicon services. Since 1997, when he left IBM, Mr. Blair has been Vice-President of the Medical Records Institute.

Jeff Blair has actively promoted the development of clinical information systems and related standards for well over a decade. He was heavily involved as a committee chair and Board member of the Computer-Based Patient Record Institute and as an active participant in Health Level 7 (HL7) and CorbaMed. With the passage of the Health Insurance Portability and Accountability Act (HIPAA) law in 1996, he has devoted extensive effort to assisting in the selection of the administrative health data standards it mandates. The Speaker of the House appointed him to the National Committee on Vital and Health Statistics in 1997, and he has played a key role there in the development of advice on standards for patient medical records. In 1998, Mr. Blair was appointed chair of the work group on computer-based patient records, which had lead responsibility for drafting the HIPAA-mandated report to the Secretary on standards for patient medical record information.

Mr. Blair has a comprehensive understanding of incentives, barriers, and opportunities surrounding the implementation of health data standards in the United States. His combined knowledge of standards development processes, commercial system development, health care business systems, and clinical applications is unique, and ACMI is grateful for his important contributions to informatics and to its public visibility.

H. Dominic J. Covvey, MSc

Professor Covvey is well known to the AMIA community, both from his work on key committees and from his frequent contributions to the tutorial and scientific programs. Immersed in our field since his early days at the University of Toronto more than 30 years ago, Dominic Covvey has spent time in both industrial and academic settings as he has pursued his interests in medical informatics education and research. After periods of association with the University of Manitoba and the University of Victoria, he is now a professor in the Faculty of Science at the University of Waterloo and he holds the Agfa Research Chair in Health Informatics.

Professor Covvey is known for a variety of research contributions over an illustrious career. In his early days, he played a key role in developing an interactive system for processing cardiac images, for displaying PDP-8 memory as a bit-mapped raster on a standard television monitor, and for recognizing heart chamber borders. He subsequently worked on the development of a database system for clinical information systems. He has been especially interested in the definition of linkage techniques for an individual’s records and for improving physician compliance in the use of clinical information systems. He has also assisted with the definition of a protocol-based clinical management framework.

His recent work has emphasized the important issue of health informatics education, including the definition of informatics competencies, the definition of educational program content, the assessment of competency, the nature of graduate education, program accreditation, and professional certification. Over the years, he has made efforts to advance the education agenda of AMIA, offering 25 tutorials, participating as a member of Scientific Program Committees, and serving as a current member of the Education Committee.

Margareta Ehnfors, PhD (International Associate)

After obtaining her degree at Sahlgrenska School of Nursing in Gothenburg, Sweden, Dr. Margareta Ehnfors spent almost 20 years as Deputy Principal of Studies in the School of Caring Sciences, Vanersborg University College. She then returned to obtain her doctorate in nursing research at Uppsala University and has been a member of the faculty at Örebro University since that time.

Professor Ehnfors is a leader in the medical informatics field in Sweden, Europe, and internationally. Her publications about nursing terminology began with a 1991 study of the content of Swedish medical records and culminated with a proposed model, known as VIPs, for capturing the content of care processes in Swedish health care records. The VIPs
The model has been translated for use in several European and Nordic countries, and its adoption is accompanied by a research and evaluation focus to understand its validity, impact, and importance to care quality.

Dr. Ehnfors has served as Swedish representative to IMIA’s Nursing Informatics Special Interest Group since 1997 and to the international standards in nursing work group within the International Standards Organization (ISO). She is an active member of IMIA’s nursing concept representation group, an invitee of the annual International Nursing Terminology Summit, and a member of the Evaluation Committee of the International Council of Nurses. She is also an accomplished informatics educator, having successfully competed for funding to establish a multidisciplinary doctoral informatics program at Orebro University, and she has received awards from international societies for her informatics distance-learning course.

Dr. Ehnfors is contributing significantly to informatics in Sweden and beyond by conducting seminal research on representing nursing care in patient records, by contributing to the international informatics literature, by participating actively in European standards work, and by establishing doctoral education for medical informatics in a multidisciplinary university environment in Sweden.

Robert H. Friedman, MD

A physician who trained at Harvard and Stanford, Dr. Friedman spent a few years with Octo Barnett at Massachusetts General Hospital (where he contributed to the early development of Computer-Stored Ambulatory Record, COSTAR) before moving in 1974 to a faculty position in the Department of Medicine at Boston University. Within a few years, he had formed the Medical Information Systems Unit (MISU), an important center for innovation in applied clinical systems that continues to this day. Dr. Friedman is now professor of medicine and professor of public health at Boston University while he continues to direct the MISU.

The MISU was one of the first research and development units, in academia or elsewhere, that created systems to help patients and consumers make important lifestyle and other health behavior changes. The Unit has been a pioneer in the development of automated systems for patients with chronic disease to help them self-manage their conditions, to assist their clinicians in monitoring their conditions, and identifying clinical problems that require medical intervention. The research has demonstrated that chronic disease management systems lead to improved health outcomes and reduced health services utilization and costs. This research has stimulated the development of a new subdiscipline: behavioral informatics.

Dr. Friedman has also led important research efforts in the integration of the structure of a clinical trial within an electronic medical record (EMR), enabling the system to instantiate specific protocols and to execute them by monitoring the EMR of participating study patients and then alerting participating clinicians when appropriate.

A frequent presenter at our annual AMIA Symposia, Dr. Friedman offers a unique union of clinical excellence, scholarly leadership, and practical insights that have been important to the evolution of our field.

David H. Gustafson, PhD

After obtaining a PhD in industrial engineering from the University of Minnesota, Dr. Gustafson has spent his entire professional career at the University of Wisconsin. His research has been at the forefront of our emerging discipline for the last three decades.

ACMI can illustrate the diversity, influence, and sustained consistency of his work by citing a few examples. In the 1970s, he and his colleagues developed a computer-based system for interviewing patients reporting suicidal thoughts and then used a Bayesian statistical model to predict the likelihood of suicide. In the 1980s, he led the development and testing of the Body Awareness Resource Network (BARN), a system to help teenagers address issues of smoking, alcohol and other drugs, sexual activity, and stress; it has been used in 16% of middle and high schools nationwide. In the 1990s, his team developed and tested the Comprehensive Health Enhancement Support System (CHESS), a program that provides information, plus emotional and decision support, to people facing life-threatening illness.

Dr. Gustafson is also known for his rigorous evaluation studies. For example, he has published on the acceptability and effectiveness of systems in populations with less education and less familiarity with computer systems such as black, unemployed, poorly educated patients with breast cancer. He was one of the founders of the Institute for Healthcare Improvement, where he developed innovative techniques for understanding the needs of consumers and identifying evidence-based principles for improving their
David H. Gustafson

Terry John Hannan

Charles Jaffe

health. He is now the National Program Director for a Robert Wood Johnson program applying systems engineering principles to enhance substance abuse treatment.

Dr. Gustafson is among that small group of specialists in the field of industrial engineering and operations research who have helped create an awareness of the importance of these disciplines to the future of sound public policy and operational management in health care. He has shown his informatics colleagues how senior academic scholars can contribute to the development of younger professionals.

Terry John Hannan, MMBS (International Associate)

A physician by training, Dr. Terry Hannan has emerged as a leader of the informatics community in Australia. His fascination with the field led to his involvement, from 1984 through 1992, as Medical Manager of the project involved in the international transfer and implementation of the well-known Johns Hopkins Oncology System in an oncology center in Sydney. He faced the challenges of rebuilding the data dictionaries to meet the needs of the Australian practice environment, and he made several similar adaptations that led to the successful implementation and continued use of the system.

His subsequent immersion in the field led to his role as an advisor on Computer Affairs to the Education Committee of the Royal Australasian College of Physicians and to publications on adverse drug reaction detection, quality assurance, variation in health care, and the status of the EMR in Australia. He has taught numerous workshops on informatics topics, often working with American colleagues who are ACMI fellows.

Dr. Hannan was founding President of the Health Informatics Association of New South Wales, and he has served as a representative of the College of Physicians on the Standards Australia HL7 Committees involved in the implementation of HL7 as a national Australian standard for health care there.

More recently, he has worked as cofounder of the first ambulatory EMR in Sub-Saharan Africa (a joint project with Bill Tierney and others). The work on building an electronic medical record system in Kenya is just now being disseminated, yet a series of government-run health centers in Namibia has asked for and received a copy of their HIV module as an EMR for those clinics.

Dr. Hannan brings to ACMI a clinician’s perspective and a strongly positive vision of the possibilities that lie ahead as informatics systems further penetrate practice settings throughout the developing and developed world.

Charles Jaffe, MD, PhD

A physician–researcher trained at Johns Hopkins and Duke Universities, Charles Jaffe discovered clinical computing at Duke and then at the National Institutes of Health. Although his early work focused on clinical trials, he had a continuing interest in clinical computing and electronic medical records. These led to his role as President of InforMed from 1992 to 2000 and his current position as Director for Medical Informatics at AstraZeneca Pharmaceuticals. He also holds a position on the engineering faculty at Penn State University.

For nearly 20 years, Dr. Jaffe has contributed to the grassroots efforts within the general medical community for adoption of information technology for health care. He has been a driving force among practicing physicians in the adoption of computer-based records, development of evidence-based medicine initiatives, and electronic clinical trials. Since joining AstraZeneca, he has risen to a leadership position within the pharmaceutical industry for driving the development and deployment of electronic data capture, clinical trial data standards, and Food and Drug Administration partnerships.

His teaching efforts in professional medical organizations have been recognized for their continuity, longevity, and devotion.

As principal investigator on more than 200 trials, Charles Jaffe became a champion of technology for electronic data capture and data standards. He has had continued leadership responsibility on organizations devoted to clinical trials data collection and standards, as well as implementation technology within the regulatory arena. Throughout the pharmaceutical industry, Chuck is recognized as a leader in the coordination of preclinical and clinical datasets and the standards for their interchange.

Charles Jaffe is an energetic and effective leader in a number of informatics organizations, and his wide experience and wisdom in several areas of informatics will be an asset to ACMI as he works with the organization in the future.

Kevin B. Johnson, MD, MS

Dr. Johnson is one of the most outstanding pediatrician-informaticians in the United States. He is one of a rare group of individuals who are excellent clinicians, excellent informaticians, and excellent teachers. After completing a
residency in pediatrics at Johns Hopkins, he obtained a master’s degree in medical information sciences at Stanford and then returned as Pediatrics Chief Resident at Hopkins. He subsequently joined the faculty in pediatrics there and became influential both locally and nationally for his informatics work. He was then recruited to Vanderbilt University Medical Center in 2002, where he is now associate professor and Vice-Chair of Biomedical Informatics and associate professor of Pediatrics.

Dr. Johnson’s research contributions have been in several areas. He has advanced uses of speech recognition technology through his collaborative work on QMED, a system for continuous speech recognition in history taking. More recently, he has become an expert on personal digital assistants (PDAs) and their use in clinical settings, building systems for use by housestaff and other physicians while also consulting to industry in the area. He has also advanced our understanding of critical pathways for streamlining workflow and improving decision making, creating CLICTATE, a structured reporting tool for guideline-based care.

Equally important have been Dr. Johnson’s ability to maintain and promote a positive attitude for team members in high-pressure clinical implementations of informatics systems and his remarkable leadership, teaching, and mentoring skills. As assistant editor of JAMIA, he recruited and directs the Student Editorial Board for the journal. His avocation has included the use of his remarkable singing voice in a near-professional choral group, and you can always count on Kevin to have the newest electronic gadget strapped to his belt.

Dr. Johnson’s scholarship, intellect, enthusiasm, creativity, and energy have all contributed to his effectiveness and to the respect of his colleagues as they welcome him to the College.

Eve-Marie Lacroix, MS

Originally trained in chemistry and mathematics, Eve-Marie Lacroix went on to earn a master’s in science information from Illinois Institute of Technology in 1972. After a decade with Notre Dame University and then with Miles Laboratories in Indiana, she moved to the Canada Institute for Scientific and Technical Information, a component of the National Research Council of Canada. There she became Head of Information Services before moving to the National Library of Medicine (NLM) in 1985. She is now Chief of the NLM’s Public Services Division.

Eve-Marie Lacroix has directed the development and ongoing maintenance of major applications that have improved access to health information for researchers, health professionals, patients, and the general public around the world. She leads the multidisciplinary team that developed and continues to maintain and expand MEDLINEplus, the NLM’s comprehensive consumer health Web information service. Launched in 1998, MEDLINEplus now contains more than 600 health topic pages that organize approximately 15,000 Web resources. MEDLINEplus now serves approximately 20 million page views to more than two million unique users each month.

Ms. Lacroix’s leadership of the development of MEDLINEplus typifies her general approach to launching, maintaining, and continuously improving high-volume production information services. This approach involves initial and ongoing study of user behavior and preferences through a combination of Web log analysis, focus groups, usability testing, user surveys, and direct user feedback. She has managed the development of many other “behind the scenes” systems that enhance delivery of health information every day. These include DOCLINE, NLM’s automated document request and routing system, which handles approximately three million interlibrary loan requests annually. She also directed the implementation of the Loansome Doc extension that allows individual users to route document requests to a library willing to serve them.

The work of Eve-Marie Lacroix has had a profound effect on the NLM, the public, and the health of the nation.

Fred E. “Chip” Masarie, Jr., MD

A physician trained at the University of Oregon, Dr. Masarie moved to Pittsburgh for housestaff training in the early 1980s. The move was fortuitous, because it brought him into contact with Harry Pople, Jack Myers, and Randy Miller’s Internist/Quick Medical Reference (QMR) efforts. The rest is history. He became a fellow in the Decision Systems Laboratory and subsequently joined the research faculty. When QMR was spun off as a commercial activity in 1990, Chip served as chief scientist and cofounder. With the evolution of that company, he became Chief Scientist with First Databank and then, in 1997, joined Medicalogic as its terminology expert, a company that in turn evolved into GE Medical Systems (where he most recently served as Enterprise Terminology Management Architect). He has not, however, abandoned his academic roots and continues to be involved teaching and mentoring.
students in the Oregon Health & Science University (OHSU) medical informatics program.

Dr. Masarie was one of the first academic informaticians to venture out into the commercial world, attempting to move an informatics-based product (QMR) into more widespread distribution. Since then, he has mentored many physicians and young informaticians regarding opportunities and career paths outside of academic informatics. He has been involved in national standards organizations and has participated in numerous informatics forums at AMIA, Healthcare Information and Management Systems Society (HIMSS), and Toward the Electronic Patient Record (TEPR). He has carried the informatics torch religiously over the past 19 years, staying true to his personal mission to “build systems that allow clinicians to capture high quality clinical data that is structured and coded such that better clinical decisions can be made.” He has influenced the directions of companies over the years as they attempt to provide products and services to tens of thousands of clinicians in an effort to provide better care through information technologies.

Dr. Masarie’s ongoing contributions to medical informatics, as an innovator, industrial leader, and teacher/mentor, make ACMI proud, and his role at national meetings and other forums has been a strongly positive force in building bridges between academia and industry.

Jerome A. Osheroff, MD, FACP

After training in electrical engineering and medicine at George Washington University in the 1980s, Dr. Osheroff moved to the University of Pittsburgh for his internal medicine residency and fellowship. It was there that he became familiar with the university’s dynamic work on integrated clinical information resources. In 1999, he assumed the role as Director of Informatics at Praxis MD, and next-generation offerings at Thomson MICROMEDEX. He leads a work group of the HIMSS Patient Safety Task Force in developing resources to help health care institutions successfully implement decision-support technologies to improve outcomes, including a clinical decision support (CDS) implementers’ workbook (freely available on the HIMSS Web site).

Alan L. Rector, MD, PhD (International Associate)

Dr. Rector was born in the United States and went to college at Pomona in California before obtaining additional training at the University of Chicago and the University of Minnesota (where he obtained his MD degree in 1970). After a year of internship in Minnesota, he was drawn to the research program of Dr. Tim deDombal in Leeds, England. The rest is history, for his newfound homeland in the United Kingdom became the basis for all his subsequent training (a PhD from the University of Manchester in 1986) and his medical informatics research. He is now professor of medical informatics in the Department of Computer Science, University of Manchester, and an elected fellow of both the British Computer Society and the British Medical Informatics Society.

Dr. Rector is one of the pioneers in the use of description logics in medical terminologies. In the PEN&PAD Project, he showed informaticians how to use knowledge representation methods to drive adaptable intelligent user interfaces based on user-centered design. He is also a pioneer, through his GALEN program, in the use of description logics in developing medical terminologies. He has been a consistent contributor to our understanding of the challenges in medical
terminology and in the structure of medical records, including the relationships between terminology and EMRs.

Alan now leads the Medical Research Council (MRC)-sponsored Cooperative Clinical E-Science Framework consortium of seven UK universities, National Health Service (NHS) trusts, and Cancer Networks. He represents the epitome of a dedicated, diligent, and thoughtful academic who has made medical informatics his career.

A frequent visitor to our shores, Dr. Rector is a wonderful contributor to our field and to our comradeship on both sides of the Atlantic.

Daniel Z. Sands, MD, MPH

After undergraduate and medical training at Brown and Ohio State Universities, Dr. Sands moved to Boston to pursue housestaff and informatics training, first at Boston University and then at Beth Israel Hospital. Currently on the faculty of medicine at Harvard Medical School, Dr. Sands has also served as Director of the Douglas Porter Fellowship in Clinical Computing, as Clinical Informatics Advisor to the Electronic Patient Record Project at Beth Israel Deaconess Medical Center, as Medical Director of Beth Israel’s Clinical Workstation Initiative, as Director of Electronic Patient Records in the Center for Clinical Computing, and as Director of Electronic Patient Records in the Center for Clinical Computing. Dr. Sands is one of the principal architects of the primary care component of the hospital-wide computing system at Beth Israel Deaconess Medical Center. This system is now used in lieu of the traditional paper record by the majority of primary care physicians. He has designed and implemented programs that perform calculations required by clinical formulas, and these resources are consulted by clinicians more than 600 times per week, both for clinical and educational uses.

Dr. Sands has been among the leading advocates of the use of electronic mail in patient care. His publication with Dr. Beverley Kane is widely recognized as the definitive set of recommendations for using electronic mail wisely and well in medical practice. More recently, Dr. Sands has turned his efforts to improving communication between physicians and patients by means of a patient-oriented Web site—PatientSite—that offers patients access to their electronic medical records and a means whereby they can readily communicate with their physicians. This program is widely recognized for its excellence in patient-centered communication.

A natural leader and excellent communicator, Dr. Sands is a regular contributor to informatics meetings as well as to influential educational programs.

Mary Ellen C. Sievert, PhD

Originally trained in English at Emmanuel College and the University of Iowa, Dr. Sievert went on to obtain her master’s degree in library science from the University of Missouri and then a 1985 PhD in educational media and information science from the same institution. She joined the faculty on completing her degree and is now professor in the School of Information Science and Learning Technology and clinical professor in the Department of Health Management and Informatics.

Beginning with her work on evaluation of methods for training expert searchers in the early 1980s, Dr. Sievert has systematically examined key factors that affect online access to medical literature. Her groundbreaking work on the comparative effects on information retrieval of electronic full-text, abstracts, titles, and human-assigned subject headings provided data to support or refute a range of hypotheses regarding medical full-text retrieval. Her research on retracted articles, errata notices, and corrected and republished articles will only grow in importance as electronic publishing makes these and other alterations to published articles both more feasible and potentially less noticeable. She has also done important work on the analysis, display, and development of controlled terminologies, including serving as first author of the Thesaurus of Health Informatics.

Dr. Sievert’s career and accomplishments reflect the multidisciplinary nature of the field of medical informatics. She has published in (and served as a reviewer for) general information science and library science journals as well as in publications directly associated with informatics, medical librarianship, and medicine. People in all of these fields cite her! As a professor, Dr. Sievert has also helped to recruit and educate informatics professionals from a wide range of backgrounds.

Dr. Sievert brings to ACMI a broad perspective and expertise in multidisciplinary research and collaboration, the education of informatics professionals, medical information retrieval, journal publication practices, and related ethical issues that are likely to grow in importance in the electronic era.
Diane J. Skiba, PhD, FAAN

After she earned her BA degree in psychology at Southern Connecticut State College, Dr. Skiba completed an MEd in educational research and a PhD in research methods, evaluation, and measurement at The University of Virginia. Dr. Skiba began working as Director of the Computer Resource Lab and assistant professor at Boston University School of Nursing while completing her PhD and continued in these positions until 1986 when she was appointed associate professor at the University of Massachusetts at Worcester Graduate School of Nursing. She moved to Colorado in 1989, where she worked as associate professor in the University of Colorado Health Sciences Center School of Nursing. She was appointed Associate Dean for Informatics and Director, Academic Innovations, in 1997. Dr. Skiba currently serves as Option Coordinator, Health Care Informatics, and associate professor of nursing at the University of Colorado Health Sciences Center.

Dr. Skiba has consistently advocated and promoted the need to educate nurses in the field of nursing informatics. After several years of teaching computer technology courses and developing assessment of competencies, she coauthored in the late 1980s a seminal nursing informatics textbook. Her scholarly articles focus on learning resource centers, needs for health care networks, and Web-based and distance learning educational programs. She is often invited to be a keynote speaker at national and international conferences.

For over 20 years, Dr. Skiba has been dedicated to teaching courses, and more specifically developing specialization master’s and doctoral programs in nursing informatics. She has been also involved in the design and development of telehealth and Web-based educational applications. She is one of the very few non-nurse professionals employed in schools of nursing and involved in informatics education of nurses and other health professionals.

Dr. Skiba’s research has resulted in useful applications, such as the Denver Free-Net (1992), a community computing system whose goal was to increase access to electronic health care information throughout the state of Colorado. This system served as a foundation for telehealth applications, which included electronic dissemination of patient educational materials, disease-specific resources, interactive support groups, listings of support groups throughout the Denver Metro region, United Way resources, and computer-mediated learning for health care professionals.

Samson W. Tu, MS

Beginning with an undergraduate degree in mathematics from Harvard College, Samson Tu moved to Stanford University, where he obtained a master’s degree in computer engineering in 1985. During his graduate training, he discovered the research programs of the Section on Medical Informatics and formed a relationship that led not only to his graduate research project, but also to a collaboration and commitment to medical informatics that continue to this day. Mr. Tu is now a senior research scientist with the Stanford group who has rightfully earned an international reputation for his innovative research, his expertise, and his ability to contribute to collaborative projects.

Mr. Tu has been the principal modeler of guidelines and protocols in a host of projects to develop decision-support systems at Stanford and elsewhere. His decomposition of a clinical practice guideline into models of processes, decisions, actions, domain concepts, and patient data has influenced numerous other guideline-modeling efforts. Mr. Tu, together with collaborators at the University of Newcastle, formulated the idea of a Virtual Medical Record that presents a simplified, standard view of clinical data from the perspective of decision-support systems. His modeling work forms the basis for much of HL7’s technical committee on clinical decision support and its work to standardize a component-based shared guideline model.

Mr. Tu pioneered the representation of clinical guideline and protocols in terms of entities in a formal ontology. He is the principal developer of the EON guideline model and a major contributor to both the PRODIGY guideline model in the United Kingdom and to the Guideline Interchange Format (GLIF) guideline model proposed by the InterMed Collaboratory.

Equally impressive has been Samson Tu’s commitment to the training of graduate students and to effective collaboration with other scientists, both at Stanford and around the world. He is a bright and effective colleague, an innovative and productive scientist, and a knowledgeable contributor to international collaborations.

Judith J. Warren, PhD, RN

Trained in nursing at the University of Hawaii and Texas Women’s University, Dr. Judy Warren returned to Hawaii to earn a PhD in educational psychology in 1987. She then headed back to the mainland to join the faculty of nursing at
the University of Nebraska in Omaha, where she refined her research interest in the use of standardized coding and classification systems, earning election to fellowship in the American Academy of Nursing in 1996. For the last four years, she has served as associate professor on the nursing faculty at the University of Kansas.

Dr. Warren has actively contributed to the development of the North American Nursing Diagnosis Association (NANDA) Taxonomy for almost two decades, emphasizing the promulgation of multidisciplinary approaches for representing concepts (including those on problem lists) in computer-based systems. She has served as a leader in the development of a reference terminology for nursing, including the seminal development of a reference terminology model for nursing interventions.

Dr. Warren is a natural leader, having assumed leadership positions in a wide variety of organizations, including NANDA (where she has served as President), the ANA, Computer-based Patient Record Institute (CPRI), the ANSI-Health Informatics Standards Board, the Systematized Nomenclature of Medicine (SNOMED) International Editorial Board, and most recently the Patient Care Committee of HL7 (where she is cochair). She has accordingly had a major influence on clinical practice and national health care policy related to inclusion of nursing data elements in computer-based systems.

Her colleagues recognize Dr. Warren as an informatician who is dedicated to integrating terminologies in a manner that facilitates data reuse and, in particular, examines and furthers nursing contributions to patient care outcomes.

**Jiajie Zhang, PhD**

A graduate of the University of Science & Technology of China in 1986, Jiajie Zhang moved to the United States to study cognitive science with Professor Don Norman at the University of California in San Diego. He completed his PhD in 1992 and then moved to Ohio State University, where he joined the faculty in the Department of Psychology. It was here that Jiajie met Dr. Jack Smith and developed an interest in biomedical applications of the theories and methods that he brought with him from cognitive science. When Dr. Smith moved to the University of Texas in Houston in 1998, Dr. Zhang moved with him and has become a key member of the School of Health Information Science there. He has developed four graduate courses that integrate cognitive science and medical informatics, and he now serves as Associate Dean for Research in that school.

Dr. Zhang has done extensive and influential research at the intersection of medical informatics and cognitive science. He has pioneered work on distributed biomedical knowledge representations and their effects on decision making, problem solving, and human-computer interaction. The work has been applied to the design of efficient information displays in many domains, including EMR displays and medical devices. He has also adapted theories from cognitive science to develop a cognitive taxonomy of medical errors. This taxonomy is intended to help generate intervention strategies for each type of error. He has also pioneered the medical application of a methodology called *Human-Centered Distributed Information Design*, intended to provide systematic principles, guidelines, and procedures for the design of human-centered computing systems such as EMRs and computerized physician order entry.

Dr. Zhang is a major player in human-centered computing in health information systems, a leading researcher in cognitive explanations of medical errors, and a productive scholar who brings together medical informatics and cognitive science.