Curriculum Vitae
Indra Neil Sarkar, PhD, MLIS, FACMI

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Name: Indra Neil Sarkar

Office Address: 89 Beaumont Avenue
Given Courtyard, S350
Burlington, VT 05405 USA

Work Phone: +1 (802) 656 8283

Work Email: Neil.Sarkar@uvm.edu

Place of Birth: Framingham, Massachusetts, USA

Education

1999	BSc	Microbiology	Michigan State University
2002	MPhil	Biomedical Informatics	Columbia University
2004	PhD	Biomedical Informatics (Advisor: David H. Figurski, PhD)	Columbia University
2008	MLIS	Library and Information Science	Syracuse University
2008	Certificate	Digital Libraries	Syracuse University

Faculty Academic Appointments

2004-2006	Bioinformatics Associate	Invertebrate Zoology	American Museum of Natural History
2004-2006	Instructor	Biomedical Informatics	Downstate Medical Center, State University of New York
2007-2008	Assistant Research Scientist	MBLWHOI Library	Marine Biological Laboratory
2009-Pres.	Assistant Professor	Microbiology and Molecular Genetics	University of Vermont
2009-Pres.	Assistant Professor	Clinical and Translational Science	University of Vermont
2009-Pres.	Assistant Professor (secondary)	Computer Science	University of Vermont

Other Professional Positions

1995	Lab Practicum	Institut fuer Klinische und Molekulare Virologie, Friedrich-Alexander University Erlangen-Nuernberg
1996	Research Intern	Research Computing Division, Genetics Institute
1996-1998	Research Assistant	Department of Microbiology, Michigan State University

1997-1999	Teaching Assistant & Student Instructor	Lyman Briggs School, Michigan State University
1998-1999	Research Assistant	Department of Physiology, Michigan State University
1999-2004	NLM Pre-Doctoral Graduate Research Fellow	Department of Biomedical Informatics, Columbia University
2001	Research Assistant	Lister Hill Center for Biomedical Communications, National Library of Medicine
2006-2008	Lecturer	NLM/MBL Biomedical Informatics Short Course, Marine Biological Laboratory
2004-2009	Affiliated Research Scientist	Department of Biomedical Informatics, Columbia University
2009-2013	Adjunct Assistant Scientist	MBLWHOI Library, Marine Biological Laboratory
2008-Pres.	Research Associate	Division of Invertebrate Zoology, American Museum of Natural History

Major Administrative Leadership Positions

2006-2008	Informatics Manager	MBLWHOI Library, Marine Biological Laboratory
2009-Pres.	Director of Biomedical Informatics	Center for Clinical and Translational Science, University of Vermont

Committee Service

Local

1999-2003	Graduate Student Advisory Committee 1999-2002 2001 2002 2003	Columbia University *Member* *Vice-Chair* *Chair* *Ex-officio*
2000-2002	Student Representative, Department of Biomedical Informatics	Columbia University
2002-2003	Columbia Speakers Fund	Columbia University
2009	Public Health Working Group, Transdisciplinary Research Initiative	University of Vermont
2009-2012	Informatics Advisory Group	Fletcher Allen Health Care
2009-2010	Clinical Epidemiologist Faculty Search Committee, Department of Surgery	University of Vermont
2009-Pres	*Chair*, Microbiology and Molecular Genetics Retreat Committee	University of Vermont
2010-2011	Director of Health Economics Search Committee, Center for Clinical and Translational Science	University of Vermont

2010-2012	Gund Professor for Ecological Economics & Director of the Gund Institute for Ecological Economics Search Committee, Rubenstein School of Environment and Natural Resources	University of Vermont
2010-2012	*Co-Chair*, Ad Hoc Committee on Scholarly Communication	University of Vermont
2010-2012	Animal Genetics/Genomics Faculty Search Committee, Department of Animal Science	University of Vermont
2011-2012	Health Economics Faculty Search Committee, Center for Clinical and Translational Science	University of Vermont
2010-2012	Work Group on Privacy, Information Security and Data Retention	University of Vermont
2010-2011	Professional Standards Committee	University of Vermont
2011-2013	Family Medicine Research Director Search Committee, Department of Family Medicine	University of Vermont
2010-Pres.	Committee on Human Research in the Medical Sciences (Institutional Review Board)	University of Vermont
2011-Pres.	Microbiology and Molecular Genetics Seminar Committee	University of Vermont
2013-Pres.	Primary Care Internal Medicine Research Director Search Committee, Department of Medicine	University of Vermont
2014-Pres.	Vermont Advanced Computing Center Advisory Committee	University of Vermont
2014-Pres.	Data Integration and Management Group	Fletcher Allen Health Care
2014-Pres.	Clinical Research Advisory Group	Fletcher Allen Health Care
2014-Pres.	Microbiology and Molecular Genetics Department Chair Search Committee, Department of Microbiology and Molecular Genetics	University of Vermont
2014-Pres.	Distinguished Undergraduate Research Award Committee, College of Agriculture and Life Sciences	University of Vermont

Regional

2009	Health Care Payment Reform Committee (Convened by Senator Bill Carris and Representative Anne O'Brien, Co-Chairs)	State of Vermont
2009-2012	Center for Clinical and Translational Science – Agency for Human Services Advisory Committee	State of Vermont
2009-2012	Regional Health Information Technology Advisory Board	State of Vermont
2009-2012	Health Information Technology Higher Education Advisory Group	State of Vermont

National and International

1999-2008	Lyman Briggs Alumni Association 1998-2008 2003-2004 2004-2008	Michigan State University *Member*, Board of Directors *Assistant Treasurer* *Vice President*
2002-2005	Advisory Committee	Wiley Interscience
2006-2007	Data Curation Education Program	University of Illinois Urbana-Champaign
2007-Pres.	*Chair*, Data Analysis Working Group	Barcode of Life Initiative, Consortium for the Barcode of Life
2007-Pres.	Implementation Board	Barcode of Life Initiative, Consortium for the Barcode of Life
2006	*Symposium Session Chair*, AAAS Annual Symposium	American Association for the Advancement of Science
2007	*Track Chair*, PSB 2007	Pacific Symposium on Biocomputing
2007-2008	*Founding Track Chair*, Scientific Program Committee, AMIA Summit on Translational Bioinformatics	American Medical Informatics Association
2008	*Workshop Organizer*, Data Analysis Working Group 2008 Hack-a-thon at EOL BioSync	Barcode of Life Initiative, Consortium for the Barcode of Life
2008-2010	*Track Chair*, Scientific Program Committee, AMIA Summit on Translational Bioinformatics	American Medical Informatics Association
2008-2009	Technical Implementation Board, Third International Conference for the Barcode of Life	Barcode of Life Initiative, Consortium for the Barcode of Life
2009	Vermont Delegation	National Governors Association for Health Information Technology and Implementation
2009-2013	Electronic Health Record - System, Vital Records Functional Work Group, HL7 EHR Technical Committee	National Center for Health Statistics, Centers for Disease Control and Prevention
2010	Program Committee, IEEE ICDM-2010 workshop on Biological Data Mining and its Applications in Healthcare	Institute of Electrical and Electronic Engineers
2010-Pres.	Program Committee, Bio-Ontologies Special Interest Group	International Society for Computational Biology
2009-2012	EHR Cause of Death Working Group, National Center for Health Statistics	Centers for Disease Control and Prevention
2010-2011	Program Committee, Fourth International Meeting for the Barcode of Life	Barcode of Life Initiative, Consortium for the Barcode of Life
2010-2011	*Chair*, Scientific Program Committee, AMIA Summit on Translational Bioinformatics.	American Medical Informatics Association
2011-Pres.	*Member*, Biomedical Informatics External Advisory Board	Georgetown-Howard University CTSA
2011	*Workshop Organizer*, Data Analysis Working Group 2011 Meeting	Barcode of Life Initiative, Consortium for the Barcode of Life
2011-2012	Program Committee, ICIBM 2012	International Conference on Intelligent Biology and Medicine

2012	Program Committee, DILS 2012	Data Integration in the Life Sciences
2011-2012	Program Committee, 2012 AMIA Annual Symposium	American Medical Informatics Association
2011-2012	Program Committee, 2012 International Conference on Systems and Informatics	Institute of Electrical and Electronic Engineers
2013	Program Committee, DILS 2013	Data Integration in the Life Sciences
2013	Program Committee, ACM Conference on Bioinformatics, Computational Biology, and Biomedical Informatics	Association for Computing Machinery
2013-Pres.	*Vice Chair for Foundations*, Scientific Program Committee, AMIA Annual Symposium	American Medical Informatics Association
2014	Steering Committee, 2014 AMIA Policy Invitational on Personalized Medicine	American Medical Informatics Association
2014-2015	*Chair*, Editorial Committee, The 15th World Congress on Health and Biomedical Informatics (MEDINFO 2015)	International Medical Informatics Association

Professional Societies

2004-2010	International Society for Infectious Diseases	
2005-2011	Computer Society, Institute of Electrical and Electronics Engineers	
	2011	*Chair*, Green Mountain Chapter
2005-2010	Association for Computing Machinery	
2007-2009	Gerontological Society of America	
1995-Pres.	American Association for the Advancement of Science	
2000-Pres.	American Medical Informatics Association	
	2009-2011	*Member*, Meetings Committee
	2009-2012	*Member*, Public Policy Committee
	2010-Pres.	*Member*, Student Paper Award Committee
	2011-2012	*Founding Chair*, Regional Informatics Action Working Group
	2011-Pres.	*Chair*, Education Committee
	2014-Pres.	*Member*, Board of Directors
	2014-Pres.	*Member*, CTS-AMIA Task Force
2000-Pres.	International Society for Computational Biology	
	2005-Pres.	*Member*, Conferences Committee
2005-Pres	Medical Library Association	

Grant Review Activities

2007	*Ad hoc Member*, Information and Intelligent Systems/Information Integration and Informatics, Directorate for Computer and Information Science and Engineering	National Science Foundation
2008	*Ad hoc Member*, Information and Intelligent Systems/Cyber Enabled Discovery and Innovation	National Science Foundation
2009	*Ad hoc Member*, Emerging Technologies and Training in Neurosciences	National Institutes of Health
2009	*Ad hoc Member*, Bioengineering Sciences and Technologies	National Institutes of Health
2010	*Ad hoc Member*, Revisionary Syntheses in Systematics, Division of Environmental Biology, Directorate for Biological Sciences	National Science Foundation
2010	*Ad hoc Member*, Assembling the Tree of Life, Directorate for Biological Sciences	National Science Foundation
2011	*Ad hoc Member*, Institutional Clinical and Translational Science Award	National Institutes of Health
2011	European Translational Information and Knowledge Management Services	European Commission & European Federation of Pharmaceutical Industries and Associations
2012	*Ad hoc Member*, Healthcare Delivery and Methodologies Integrated Review Group	National Institutes of Health
2012	*Ad hoc Member*, Bioengineering Sciences & Technologies Integrated Review Group	National Institutes of Health
2012	*Ad hoc Member*, Aides à la Formation-Recherche Review Committee	Luxembourg National Research Fund
2012	*Ad hoc Member*, Discovery Grant Proposal Review Committee	National Sciences and Engineering Research Council of Canada
2012	*Ad hoc Member*, Stand-alone Project Review Committee	Austrian Science Fund
2013	*Ad hoc Member*, Biobehavioral and Behavioral Processes	National Institutes of Health
2013	*Ad hoc Member*, Special Emphasis Panel: Biobehavioral and Behavioral Processes	National Institutes of Health
2013	*Ad hoc Member*, Risk, Prevention & Health Behavior	National Institutes of Health
2013	*Ad hoc Member*, Smart and Connected Health, Informatics, Directorate for Computer and Information Science and Engineering	National Science Foundation
2013	*Ad hoc Member*, Healthcare Delivery and Methodologies	National Institutes of Health
2014	*Ad hoc Member*, NIAID Investigator Initiated Program Research Resource	National Institutes of Health
2014	*Ad hoc Member*, Healthcare Delivery and Methodologies	National Institutes of Health

Editorial Activities

Ad hoc Reviewer

AMIA Association Annual Symposium
AMIA Summit on Translational Bioinformatics
AMIA Summit on Clinical Research Informatics
Applied Clinical Informatics
Artificial Intelligence in Medicine
Association for Computational Linguists: BioNLP
Bioinformatics
BMC Bioinformatics
BMC Genomics
BMC Source Code for Biology and Medicine
Briefings in Bioinformatics
Computers in Biology and Medicine
Drug Discovery Today
eGEMS
Elsevier/Academic Press
FASEB Journal
Genome Medicine
IMIA Yearbook of Medical Informatics
International Symposium on Languages in Biology & Medicine
Journal of Biomedical Informatics
Journal of Parasitology
Journal of the American Medical Informatics Association
Journal of Translational Medicine
Methods of Information in Medicine
Molecular Biology and Evolution
Molecular Phylogenetics and Evolution
Neoplasia
Network Tools and Applications in Biology
Pacific Symposium on Biocomputing
Parasitology
PLOS ONE
Plant Systematics and Evolution
World Scientific Press

Other Editorial Roles

2005-2007	Guest Editor (Phylogenetics)	*Journal of Biomedical Informatics*
2007-Pres.	Editorial Board Member	*Recent Patents in Computer Science*
2009-2012	Editorial Board Member	*Journal of Biomedical Informatics*
2009-Pres.	Editorial Board Member	*International Knowledge Discovery in Bioinformatics*
2009-Pres.	Editorial Board Member	*Briefings in Bioinformatics*
2008	Guest Editor (Selected Papers from the 2008 AMIA Summit on Translational Bioinformatics [TBI 2008])	*BMC Bioinformatics*

2009	Guest Editor (Selected Papers from TBI 2009)	*BMC Bioinformatics*
2009	Guest Editor (Biodiversity Informatics)	*BMC Bioinformatics*
2010	Guest Editor (Education in Bioinformatics)	*Briefings in Bioinformatics*
2011-2012	Guest Co-Editor (Standards in Practice)	*Journal of Biomedical Informatics*
2011-2012	Guest Editor (Selected Papers from TBI 2011)	*Journal of Biomedical Informatics*
2011-2013	Editorial Board Member	*Journal of the American Medical Informatics Association*
2011-Pres.	Associate Editor	*Methods of Information in Medicine*
2011-Pres.	Academic Editor	*PLOS ONE*
2011-Pres.	Editorial Board Member	*Journal of Personalized Medicine*
2013	Associate Editor (NETTAB 2012 Supplement)	*BMC Bioinformatics*, *Journal of Biomedical Semantics*, & *Journal of Clinical Bioinformatics*

Honors and Prizes

1999	Medical Informatics Training Fellowship	National Library of Medicine, National Institutes of Health
2001	Summer Research Fellowship	Lister Hill Center for Biomedical Communications, National Library of Medicine, National Institutes of Health
2003	International Lipari School Scholarship	Italian Ministry of Research and Universities
2006	Donald A.B. Lindberg Research Fellowship	Medical Library Association
2007	Membership (top 10% of graduate class)	The Honor Society of Phi Kappa Phi
2008	Award of Recognition for "Outstanding Contributions to the Launch and Success of the Encyclopedia of Life Project"	Alfred P. Sloan Foundation
2009	Membership (GPA > 3.75 & top 25% of MLIS class)	Beta Phi Mu (International Society for Librarianship and Information Science)
2011	Distinguished Paper Award (2 awards for 2 papers)	AMIA Annual Symposium
2014	IBM Faculty Award	IBM
2014	Elected Fellow	American College of Medical Informatics (ACMI)

Report of Funded and Unfunded Projects

Funding Information

Past

2004-2007 Virtual Center for Plant Evolutionary Genomics
NSF
Investigator
The goal of this project was develop systematic approaches for organizing and curating plant genomes using high-throughput data (e.g., ESTs). Particular emphasis was placed in the advancement of phylogenetic techniques and guiding the development of automated techniques to facilitate high-throughput phylogenetic analyses.

2006-2007 Bridging Biomedical and Biodiversity Knowledge via Taxonomic Information
Medical Library Association (Donald A.B. Lindberg Fellowship)
PI ($25,000)
The goal of this project was to organize taxonomic literature from biomedical and biodiversity resources into a form that can be browsed from a centralized Web interface.

2004-2010 Development of New Digital Library Applications in the Context of a Basic Ontology for Biosystematics Information Using the Literature of Entomology (Ants).
NSF/IIS 0241229 & 0943395
PI [2008-2010] ($52,699); Co-PI [2006-2008] ($559,245); Investigator [2004-2006]
As part of an international collaboration (Germany and the United States), the goal of this project was to digitize a museum collection and develop ontology driven methods for its organization, focusing on literature pertaining to ants.

2007-2011 Encyclopedia of Life: Accelerating Analysis of the Biology of Aging
Ellison Medical Foundation
Consultant [2008-2011]; Program Director [2007-2008] ($1,954,885)
The goal of this project was to develop an informational portal for consumers and experts in the molecular biology of aging that interfaces with the Encyclopedia of Life project.

2008-2012 Enhancing Organism Based Disease Knowledge Via Name Based Taxonomic Intelligence
NIH/NLM R01LM009725
PI ($725,754)
The goal of this project was to develop linkages between biodiversity and biomedical knowledge through semantic technologies to identify plausible hypotheses within the context of infectious diseases.

2008-2010 Mental Health Intergovernmental Service System Interactive Online Network for Vermont
SMSHA H79SM05880
Co-Investigator
Through an intergovernmental partnership that strove to build infrastructure for mental health, the goal of this project was to address the needs of Vermont veterans and adults with trauma spectrum illness.

2010 Create Decision Support Systems, Quality and Cost Data Analysis to Support State Sponsored and Other Program Beneficiaries In Receiving the Highest Quality and Most Cost Effective Services
Vermont Department of Health
PI, Biomedical Informatics ($1,074,307)
This 9-month project established infrastructure for a research data warehouse that will ultimately serve researchers and government officials for the State of Vermont. The initial data included vital record data, claims and clinical data from Fletcher Allen Health Care.

2010-2012 Informatics for Zoonotic Disease Surveillance: Combining Animal and Human Data
NIH/NLM R00LM009825
Co-Investigator
The goal of this project was to develop an infrastructure for zoonotic disease surveillance.

2010-2013 CMS Children's Quality Demonstration Grant
Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA): Maine & Vermont
Co-Investigator
This project aimed to (1) allow research and evaluation of new evidence-based measures to provide an opportunity to identify the challenges in gathering and reporting data to providers and consumers; (2) promote health information technology in children's health care delivery; and, (3) evaluate of provider-based models that improve delivery of children's health care.

2010-2013 Identifying the Intersection of Informatics and Comparative Effectiveness Research Literature
AHRQ (EDM Forum/AcademyHealth)
Consultant
This project involved reviewing and refining search strategies for performing systematic literature search of the intersection of biomedical informatics and comparative effectiveness literature, as well as providing expertise on coding and classification of retrieved articles.

Current

2012-2016 Leveraging the EHR to Collect and Analyze Social, Behavioral & Familial Factors
NIH/NLM R01LM011364
Co-Investigator
The overall goal of this project is to develop and evaluate computational methods for generating knowledge regarding the relationships between diseases and social, behavioral, and familial factors from EHR data. This project is a collaborative effort between the University of Vermont and University of Minnesota.

2013-2015 Data Abstraction Project
Vermont Oxford Network
PI ($295,252)
The long-term goal is to leverage data that are collected as part of the Vermont Oxford Network Very Low Birth Weight database in combination with data within electronic health records (EHRs) to support quality improvement reporting activities of the Vermont Oxford Network membership.

2013-2017 A Knowledge Base for Clinically Relevant Genes and Variants
NIH/NHGRI U01HG007437
Co-Investigator
The goal of this project is to develop a national resource for the identification and dissemination of consensus information on genetic variants relevant for clinical care through collaboration across nine US partners: UNC (lead), ACMG, Geisinger, Washington University, Emory, Brigham & Women's, Georgetown, UVM, and University of Utah.

2014 Developing Automated Methods for Identifying the Intersection of Informatics and Comparative Effectiveness Research Literature
AHRQ (EDM Forum/AcademyHealth)
Consultant
This project aims to develop a semi-automated approach to facilitate the identification of biomedical literature that is at the intersection of biomedical informatics and comparative effectiveness literature.

2014 Leveraging Big Data in Health Care for Pre-Term Birth
IBM (Faculty Award)
PI ($35,000)
This project aims to explore the potential of data mining techniques to develop a comprehensive map of comorbidities associated with pre-term birth from a range of electronic biological and health data.

2014-2017 In Silico Identification of Phytotherapies
NIH/NLM R01LM011963
PI ($860,898)
The overall goal of this project is to develop a computational infrastructure to identify potential plant-based therapies from legacy and contemporary sources of biomedical and ethnobotanical literature. Collaborative effort between University of Vermont and The New York Botanical Garden.

Report of Local Teaching and Training

Teaching of Students in Courses

1994	Chemistry	Educational Studies Program, Massachusetts Institute of Technology
	Accelerated High School Students	3 hour lecture per week for 10 weeks
1994	Calculus I (AB)	Educational Studies Program, Massachusetts Institute of Technology
	Accelerated High School Students	3 hour lecture per week for 10 weeks
1997-1999	Biocomputing	Lyman Briggs School, Michigan State University
	Lower Classmen	1 hour lecture per week for 6 weeks
2004-2006	Introduction to Medical Informatics	Downstate Medical Center, State University of New York
	Graduate Students	3 hour lecture per week for 15 weeks
2004-2006	Clinical Decision Support Systems	Downstate Medical Center, State University of New York
	Graduate Students	3 hour lecture per week for 15 weeks
2004-2006	Internet Integration into Health Care	Downstate Medical Center, State University of New York
	Graduate Students	3 hour lecture per week for 15 weeks
2009-Pres.	Introduction to Biomedical Informatics	University of Vermont
	Upper Classmen and Graduate Students	3 hour lecture per week for 15 weeks
2010-Pres.	Programming for Bioinformatics	University of Vermont
	Upper Classmen and Graduate Students	3 hour lecture per week for 15 weeks
2010-Pres.	Methods in Bioinformatics	University of Vermont
	Upper Classmen and Graduate Students	3 hour lecture per week for 15 weeks
2010-Pres.	Undergraduate Colloquium	University of Vermont
	First Year Undergraduates	75 minute lecture per semester
2011,2013	Microbial Genomics	University of Vermont
	Graduate Students	75 minute lecture per semester
2012-Pres.	Genetics	University of Vermont
	Lower Classmen	75 minute lecture per semester
2014	First Year Seminar for Computer Science Majors	University of Vermont
	First Year Undergraduates	50 minute lecture

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

2010-2012	Translational Bioinformatics: Guiding Bench Side Innovations to the Clinic	University of Vermont
	Medicine Fellows	1 hour lecture

Laboratory and Other Research Supervisory and Training Responsibilities

2009-2011	MSc (Biology) Committee for Violet Roskens / University of Vermont	Committee Chair
2009-2010	MSc (Computer Science) Committee for Sasi Kunta / University of Vermont	Committee Member
2009-2011	PhD (Computer Science) Committee for Saurav Acharya / University of Vermont	Committee Member
2011-2012	PhD (Cellular, Molecular, and Biomedical Sciences) Committee for Pamela Lescault / University of Vermont	Committee Member
2010-2013	PhD (Clinical and Translational Science) Committee for W. Gabe Tharpe / University of Vermont	Committee Member
2012	PhD (Comparative Biology) Committee for Sebastian Kvist / American Museum of Natural History	Committee Member
2013	PhD (Computer Science and Engineering) Committee for Emanuel Weitschek / Roma Tre University	External Reader
2010-2014	PhD (Cellular, Molecular, and Biomedical Sciences) Committee for Adam Sateriale / University of Vermont	Committee Member
2012-2014	MSc (Biology) Committee for Anne McHugh / University of Vermont	Committee Chair
2010-Pres.	PhD (Clinical and Translational Science) Committee for Peter Durda / University of Vermont	Committee Member
2011-Pres.	PhD (Animal, Nutrition, and Food Science) Committee for Suzanne Ishaq / University of Vermont	Committee Chair
2011-Pres.	PhD (Biology) Committee for Frederico Lopez-Osorio / University of Vermont	Committee Chair
2011-Pres.	PhD (Animal, Nutrition, and Food Science) Committee for Mital Pandya / University of Vermont	Committee Member
2013-Pres.	PhD (Plant Biology) Committee for Meghan Mckeown / University of Vermont	Committee Member
2013-Pres.	PhD (Animal, Nutrition, and Food Science) Committee for Laura Cersosimo / University of Vermont	Committee Member
2013-Pres.	PhD (Biology) Committee for Amanda Northrop / University of Vermont	Committee Chair
2014	MSc (Computer Science) Committee for Yucan Zhang / University of Vermont	Committee Member

Formally Supervised Trainees

2004-2006	Atin Saha (High School Student) Advisor as part of New York Academy of Sciences high school STEM educational programs; worked on developing bioinformatics skills.
2005-2006	Judy Ri (High School Student) Advisor as part of New York Academy of Sciences high school STEM educational programs; worked on developing bioinformatics skills.
2005-2006	Subashis Paul (High School Student) Advisor as part of New York Academy of Sciences high school STEM educational programs; worked on developing bioinformatics skills.

2005-2006	Lakshman Sankar (High School Student) Advisor as part of New York Academy of Sciences high school STEM educational programs; worked on developing bioinformatics skills.
2005-2006	Tanu Chauhan (High School Student) Advisor as part of New York Academy of Sciences high school STEM educational programs; worked on developing bioinformatics skills.
2009-2010	Patrick Benson (Pre-Medical Post-Baccalaureate) / MD Student at University of Vermont Studied the history and evolution of the Problem List in Electronic Health Records.
2010	Benjamin Earle (Pre-Medical Post-Baccalaureate) / MD Student at University of Vermont Developed Natural Language Processing techniques for organizing microbiome data.
2011-2013	Emily Bates (BS; Business Administration) Developed programming skills to analyze GenBank data for supporting microbiome studies.
2010-2013	Ahmed Nabhan (PhD; Computer Science) / Senior Software Engineer, Sears Holdings Published three manuscripts that focused on the development of graph mining techniques in a range of biomedical contexts; awarded funding from the Egyptian Cultural and Education Bureau.
2011-2013	Marianne Burke (PhD; Clinical and Translational Science) / Transferred to another advisor Worked to develop strategies for gathering background information to support doctoral research project; transferred to another advisor due to change in research interest.
2011-2014	Brian Nielsen, MD (Obstetric Fellowship Research) / Obstetrician at FAHC Developed computational approach for searching biomedical literature for knowledge pertaining to potential model species for studying pre-term birth.
2011-2014	Vivekanand Sharma (PhD; Microbiology and Molecular Genetics) / Post-doc at University of Vermont Published three manuscripts focused on identifying potential phyto-therapeutic knowledge in biomedical literature.
2012-2013	Matthew McAvoy (BS; Molecular Genetics) / MS Student at Brown University Developed programming skills to analyze prokaryotic genomic data according to clusters of orthologous genes.
2012-2013	Alyssa Humphrey (BS; Molecular Genetics) / Product Coordinator at FoodScience Corp Developed a computational process for identifying motifs of interest within adhesome proteins.
2012-2014	Joseph Romano (BS; Molecular Genetics) / PhD Student at Columbia University Developed phylogenetic pipeline to analyze complex disease genes resulting in a manuscript currently under review.
2013-Pres.	Christina Yu (BS; Biochemistry) Developing computational approaches to study the hologenome of life as well as techniques to validate phytotherapeutic knowledge within biomedical literature
2014	Joseph Friedman (BA; Anthropology) / Graduate Student at University of Washington Developed a computational methodology to apply syndemic theory to identify potential correlations of interest from hospital discharge administrative data.
2014-Pres.	Ian Johnson (BS; Biology) Developing a census of plant knowledge across publicly accessible resources.
2014-Pres.	William Stone Robinson (BS; Biochemistry) Developing techniques to identify phytochemical and synthetic drug similarity

Local Invited Presentations

2007 Informatics Meets Biodiversity: Introductions / Invited Seminar
MBL Bay Paul Center

2010 Biomedical Informatics Across the University and State of Vermont / Grand Rounds
Center for Clinical and Translational Science, University of Vermont

2010 An Overview of UVM CCTS Biomedical Informatics Activities / Grand Rounds
Department of Obstetrics and Gynecology, University of Vermont

2013 Leveraging Electronic Health Data for Next Generation Clinical Research / Retreat Keynote
Department of Obstetrics and Gynecology, University of Vermont

Report of Regional, National and International Invited Teaching and Presentations

Invited Presentations and Courses

Regional

2005 Contemporary Topics in Bioinformatics: Organizing and Curating the Genome Deluge / Invited Presentation
Quantitative Biology Symposium, City University of New York, New York, NY

2007 Biomedical Insights Through the Lens of Biodiversity / Invited Speaker
MITRE Corporation, Bedford, MA

2007 A Fish By Any Other Name: Organizing and Navigating Taxonomic Content From Literature / Invited Speaker
National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA)

2008 Biodiversity Informatics: Information Integration Across the Spectrum of Life / Invited Speaker
Harvard Medical School, Boston, MA

2008 Harnessing the Power of the Semantic Web to Manage Biodiversity Data / Invited Speaker
Cambridge Semantic Web Group, Cambridge, MA

2011 The UVM Integrated Research Information System / Invited Speaker
Green Mountain Care Board, Montpelier, VT

National

2002 Physiognomonics / Alumni Guest Speaker
35th Anniversary of Lyman Briggs School, Michigan State University, East Lansing, MI

2002 Fall Commencement Address / Invited Speaker
Lyman Briggs School, Michigan State University, East Lansing, MI

2003 The Characteristic Attribute Organization System / Invited Presentation
Training Directors' Meeting, National Library of Medicine, Washington, DC

2003 Linking Biomedical Language Information and Knowledge Resources: GO and UMLS / Paper Presentation
Pacific Symposium on Biocomputing, Lihue, Hawaii

2003 Enabling Resources for Biomedical Discovery / Invited Panelist
Pacific Symposium on Biocomputing, Lihue, Hawaii

2005	Organizing and Understanding the Biological Data Deluge through Phylogenetics / Invited Tutorial Speaker IEEE Computational Systems Bioinformatics Conference, Stanford, CA.
2005	Using the Existing Biomedical Infrastructure to Guide the Design and Development of Biological Ontologies / Invited Panelist ACM Joint Conference on Digital Libraries (JCDL 2005), Denver, CO
2006	Literature Based Discovery of Gene Clusters Using Phylogenetic Methods / Paper Presentation AMIA Annual Symposium, Washington, DC
2006	Bridging Biomedical and Biodiversity Knowledge Through Literature / Invited Speaker TeleNature Workshop on Refactoring Natural History Literature, University of Illinois Urbana–Champaign, Urbana–Champaign, IL
2006	Enabling Biological Knowledge Integration Through Scientific Nomenclature / Invited Speaker International Society for Phylogenetic Nomenclature, Yale University, New Haven, CT
2006	Reflections on Careers in Biomedical Informatics / Invited Alumni Speaker Department of Biomedical Informatics Retreat, Columbia University, Hudson Valley, NY
2007	A Customizable 'Mash-up' for Model and Disease Organisms / Podium Presentation (abstract) Medical Library Association Annual Meeting, Philadelphia, PA
2007	New Frontiers in Natural Language Processing / Invited Panelist Pacific Symposium on Biocomputing, Maui, HI
2007	Biodiversity Informatics and Assembly of the Encyclopedia of Life / Alumni Invited Speaker 40th Anniversary of Lyman Briggs School, Michigan State University, East Lansing, MI
2007	Biodiversity Informatics: Managing Knowledge Beyond Humans and Model Organisms / Invited Tutorial Speaker Pacific Symposium on Biocomputing, Maui, HI
2007	Briefing: The Biodiversity Heritage Library / Invited Speaker Coalition for Networked Information, Washington, DC
2008	Towards Developing Practical Taxonomic Ontologies / Invited Speaker Plant and Animal Genome XVI Conference, San Diego, CA
2008	Enabling a Systems View of the Biology of Aging through Semantic Technologies / Invited Speaker Systems Biology of Aging, Phoenix, AZ
2008	Development of an Automated Framework to Identify Biology of Aging Literature / Podium Presentation (abstract) Gerontological Society of America Annual Meeting, National Harbor, MD
2009	LigerCat: Using "MeSH Clouds" from Journal, Article, or Gene Citations to Facilitate the Identification of Relevant Biomedical Literature / Paper Presentation AMIA Annual Symposium, Washington, DC
2010	Biomedical Informatics Approaches for Exploring Biodiversity Knowledge / Invited Speaker Department of Biomedical Informatics, University of Utah, Salt Lake City, UT
2010	Piecing Together Health Care Reform: The Vermont Story / Invited Speaker National Association of Health Data Organizations, Salt Lake City, UT

2010 Leveraging Biomedical Ontologies and Annotation Services to Organize Microbiome Data from Mammalian Hosts / Paper Presentation
AMIA Annual Symposium, Washington, DC

2011 Developing Biodiversity Knowledge Bases for Use in Disease Surveillance / Invited Speaker
Department of Biomedical Informatics, Arizona State University, Phoenix, AZ

2011 Challenges and Opportunities with the Biomedical Data Deluge / Invited Presentation
iSchool, Syracuse University, Syracuse, NY

2011 Unstructured Documentation in the Current Clinical Practice / Invited Feature Presenation
Cerner Physician Community, Cerner Corporation, Kansas City, MO

2011 Leveraging Secondary Data Analyses to Cross the Translational Divide / Invited Speaker
Department of Biomedical Informatics, Columbia University, New York, NY

2011 The Joint Summits on Translational Science: Reflections and Aspirations / Panel Presentation (abstract) / Panelist
AMIA Annual Symposium, Washington, DC

2011 Can Network Visualization and Analysis Accelerate Medical Discoveries? Theoretical, Applied, and Funding Perspectives / Panel Presentation (abstract) / Panelist
AMIA Annual Symposium, Washington, DC

2011 A Vector Space Model Based Approach to Identify Genetically Related Diseases / Podium Presentation (abstract)
AMIA Annual Symposium, Washington, DC

2012 Introduction to Translational Bioinformatics / Invited Tutorial Speaker
AMIA Summit on Translational Bioinformatics, San Francisco, CA

2012 Identification of Potential Model Organisms for Disease Using A Vector Space Model Approach / Podium Presentation (abstract)
AMIA Summit on Translational Bioinformatics, San Francisco, CA

2012 Knowledge Synthesis for *in silico* Science: Lessons Learned and Future Directions / Panel Presentation (abstract) / Panelist
AMIA Summit on Translational Bioinformatics, San Francisco, CA

2012 Determining Compound Comorbidities for Heart Failure from Hospital Discharge Data / Paper Presentation
AMIA Annual Symposium, Chicago, IL

2013 Transforming Biomedical Data for Health
Geisel School of Medicine, Dartmouth College, Lebanon, NH

2013 Resolving and Standardizing Providers within Administrative Data / Podium Presentation (abstract)
AMIA Annual Symposium, Washington, DC

2014 (Re)Characterizing Disease: Transforming Biomedical Data into Wisdom
Department of Biomedical Informatics, The Ohio State University, Columbus, OH

2014 Transforming Biomedical Data into Actionable Knowledge for Health
Brown University, Providence, RI

2014 The Future is Now! Automating VON Data From Your EHR
Vermont Oxford Network Annual Quality Congress, Chicago, IL

2014 Using Arden Syntax to Identify Registry-Eligible Very Low Birth Weight Neonates from the Electronic Health Record / Paper Presentation
AMIA Annual Symposium, Washington, DC

2014 High School Scholars: Building New Paths (to Biomedical Informatics Education) / Panel Moderator (abstract)
AMIA Annual Symposium, Washington, DC

2014 Translational Bioinformatics: Highlights from the Summits / Panel Moderator
AMIA Annual Symposium, Washington, DC

2014 ACMI History II / Invited Panelist
AMIA Annual Symposium, Washington, DC

International

2006 Automated Barcoding Using the Characteristic Attribute Organization System / Invited Speaker
Data Analysis Working Group Meeting for the Consortium for the Barcode of Life, National Museum of Natural History, Paris, France

2007 Deriving and Using Barcode Based Diagnostics for Information Retrieval / Invited Speaker
Second International Barcode of Life Conference, Taipei, Taiwan

2008 Gaz – an open source community–developed Gazetter / Invited Speaker
Genome Standards Consortium (GSC) Workshop, Cambridge, UK

2008 Biomedicine Through the Lens of Biodiversity Informatics / Invited Speaker
University of Pavia, Pavia, Italy

2008 Biodiversity Informatics: Enabling a Macroscopic View of Biology / Keynote Speaker
20th EMBnet Anniversary European Molecular Biology Network, Martina Franca, Italy

2009 Introduction to Biodiversity Informatics / Invited Speaker
Annelid Tree of Life – Clitellata Lecture Series, Gothenburg, Sweden

2009 Finding Needles in the Biodiversity Haystack: Secondary Uses of Biological Information / Invited Speaker
Annelid Tree of Life – Clitellata Lecture Series, Gothenburg, Sweden

2009 Informatics and Data Analytics for DNA Barcoding: Wherefrom, Where now, and Whereto? / Invited Plenary Address
Third International Barcode of Life Conference, Mexico City, MX

2011 Translational Bioinformatics: Unifying the Spectrum of Biomedicine / Invited Speaker
50th Anniversary for *Methods of Information in Medicine*, Heidelberg, Germany

2011 -Omics Data Integration for (Personalized) Molecular Medicine / Invited PhD Seminar
University of Pavia, Pavia, Italy

Report of Technological and Other Scientific Innovations

2001 CAOS: Method and System for Recognizing One or More Characteristic Attributes of One or More Groups of Information Items. PCT/US2002/003540; 60/267,972
Led the development of a new approach for phylogenetic based classification of sequence-based data.

2002 System and Method for Generating an Amalgamated Database. US 11/120,715
As part of a team led by Dr. Yves Lussier, developed an approach for multi-dimensional analysis of genomic and phenomic data to support personalized medicine applications.

2014 A System and Method for Using Decision Rules to Identify and Abstract Data from Electronic Health Sources. Provisional Patent Filing.
Led the development of using Arden Syntax for determining eligibility and gathering relevant data for population of population specific registries from electronic health data sources.

Report of Scholarship

Publications

Peer reviewed publications in print or other media

Research Investigations

1. Planet PJ, DeSalle R, Sidall ME, Bael T, **Sarkar IN**, Stanley SE. "Systematic Analysis of DNA Microarray Data: Ordering and Interpreting Patterns of Gene Expression." Genome Research Jul;11(7):1149–1155. 2001.
2. Lussier YA, **Sarkar IN**, Cantor MN. "An Integrative Model for In–Silico Clinical Genomics Discovery Science." AMIA Annu Symp Proc 469–473. 2002.
3. **Sarkar IN** and Starren JB. "Desiderata for Personal Electronic Messaging in Clinical Systems." Journal of the American Medical Informatics Association May/Jun;9:209–216. 2002.
4. **Sarkar IN**, Thornton J, Planet PJ, Schierwater B, and DeSalle R. "A systematic method for classification of novel homeoboxes." Molecular Phylogenetics and Evolution Sep;24(3):388–399. 2002.
5. **Sarkar IN**, Planet PJ, Bael TE, Stanley SE, Siddall M, DeSalle R, Figurski DH. "Characteristic Attributes in Cancer Microarrays." Journal of Biomedical Informatics Apr/May;35(2):111–122. 2002.
6. **Sarkar IN**, Cantor MN, Gelman R, Hartel F, Lussier YA. "Linking Biomedical Language Information and Knowledge Resources: GO and UMLS." Pacific Symposium Biocomputing 8:427–450. 2003.
7. **Sarkar IN**, Rosenfeld JA, Planet PJ, Figurski DH, DeSalle R. "ORFcurator: Molecular Curation of Genes and Gene Clusters in Prokaryotic Organisms." Bioinformatics 20: 3462–3465. 2004.
8. Koning D, **Sarkar IN**, Moritz TD. "TaxonGrab: Extracting Taxon Names from Text." Journal of Biodiversity Informatics 2;79–82. 2005.
9. Planet PJ, **Sarkar IN**. "mILD: A Tool for Constructing and Analyzing Matrices of Pairwise Character Incongruence Tests." Bioinformatics 21:4423–4224. 2005.
10. Chiu JC, Lee EK, Egan MG, **Sarkar IN**, Coruzzi GM, DeSalle R. "OrthologID: Automation of Genome Scale Ortholog Identification within a Parsimony Framework." Bioinformatics 2006 22(6):699–707.
11. Kelly RP, **Sarkar IN**, Eernisse DJ, DeSalle R. "DNA Barcoding Using Chitons (genus Mopalia). Molecular Ecology Notes. 2007 7(2): 177–183.
12. Perkins SL, **Sarkar IN**, Carter R. "The Phylogeny of Rodent Malaria Parasites: Simultaneous Analysis Across Three Genomes." Infection, Genetics and Evolution. 2007 7(1):74-83.
13. Leary PR, Remsen DP, Norton CN, Patterson DJ, **Sarkar IN**. "uBioRSS: Tracking Taxonomic Literature Using RSS." Bioinformatics. 2007 23(11):1434–1436.
14. Rach J, DeSalle R, **Sarkar IN**, Schierwater B, Hadrys H. "Character–based DNA barcoding allows discrimination of genera, species, and populations in Odonata." Proceedings of the Royal Society B: Biology. 2008 275(1632):237–47.

15. **Sarkar IN**, Egan MG, Coruzzi GM, Lee EK, DeSalle R. "Automated Simultaneous Analysis Phylogenetics (ASAP): An Enabling Tool for Phylogenomics." BMC Bioinformatics. 2008 19;9:103.
16. Garcia–España A, Chung PJ, **Sarkar IN**, Stiner E, Sun TT, Desalle R. "Appearance of new tetraspanin genes during vertebrate evolution." Genomics. 2008 91(4):326–34.
17. **Sarkar IN**, Schenk R, Norton CN. "Exploring Historical Trends Using Taxonomic Name Metadata." BMC Evolutionary Biology. 2008 8:144.
18. **Sarkar IN**, Planet PJ, DeSalle R. "CAOS Software for Use in Character Based DNA Barcoding." Molecular Ecology Resources. 2008;8(6):1256-1259.
19. Miller H, Norton CN, **Sarkar IN**. "GenBank and PubMed: How connected are they?" BMC Res Notes. 2009 Jun 9;2(1):101.
20. Lienau EK, DeSalle R, Allard M, Brown EW, Swofford D, Rosenfeld JA, **Sarkar IN**, Planet PJ. "The mega-matrix tree of life: using genome-scale horizontal gene transfer and sequence evolution data as information about the vertical history of life." Cladistics. 2010 August 26; 26: 1-11.
21. Melton GB, Raman N, Chen ES, **Sarkar IN**, Pakhomov S, Madoff RD. "Evaluation of Family History Information within Clinical Documents and Adequacy of HL7 Clinical Statement and Clinical Genomics Family History Models for Its Representation." Journal of the American Medical Informatics Association. 2010 May 1; 17(3):337-340.
22. Chen ES, **Sarkar IN**. "MeSHing Molecular Sequence and Clinical Trials: A Feasibility Study." Journal of Biomedical Informatics. 2010 Jun; 43(3):442-450.
23. Scotch M, Mei C, Brandt C, **Sarkar IN**, Cheung K. "At the intersection of public health informatics and bioinformatics: using advanced Web technologies for phylogeography." Epidemiology. 2010 Nov; 21(6): 764-8.
24. Kvist SB, **Sarkar IN**, Erséus C. "Genetic variation, phylogeny, and invasiveness of the cosmopolitan marine genus Tubificoides (Annelida: Clitellata: Naididae: Tubificinae)." Molecular Phylogenetics and Evolution. 2010 Nov;57(2):687-702.
25. Min G-S, **Sarkar IN**, Siddall ME. "Salivary transcriptome of the North American medicinal leech, Macrobdella decora." Journal of Parasitology. 2010 Dec;96(6):1211-21.
26. **Sarkar IN**, Trizna M. "The Barcode of Life Data Portal: Bridging the Biodiversity Informatics Divide for DNA Barcoding." PLoS ONE. 2011;6(7):e14689.
27. Fitzsimmons LF, Flemer S, Wurthmann AS, Deker PB, **Sarkar IN**, Wargo MJ. "Small molecule inhibition of choline catabolism in Pseudomonas aeruginosa and other aerobic choline-catabolizing bacteria." Applied and Environmental Microbiology. 2011 Jul;77(13):4383-9.
28. Kvist SB, **Sarkar IN**, Siddall ME. "Genome-wide search for leech antiplatelet proteins in the non-bloodfeeding leech Helobdella robusta (Rhyncobdellida: Glossiphoniidae) reveals evidence for secreted anticoagulants." Invertebrate Zoology. 2011 Dec;130(4):344-350.
29. Scotch M, **Sarkar IN**, Mei C, Leaman R, Cheung K, Ortiz P, Singh A, Gonzalez G. "Enhancing Phylogeography by Improving Geographical Information from GenBank." Journal of Biomedical Informatics. 2011 Dec;44 Suppl 1:S44-7
30. **Sarkar IN**. "A Vector Space Model Based Approach to Identify Genetically Related Diseases." Journal of the American Medical Informatics Association 2012 Mar-Apr;19(2):249-54.
31. Perez-Cheeks BA, Planet PJ, **Sarkar IN**, Clock SA, Xu Q, Figurski DH. "The product of tadZ, a new member of the parA/minD superfamily, localizes to a pole in Aggregatibacter actinomycetemcomitans." Mol Microbiol. 2012 Jan 13
32. Payne PRO, Pressler TR, **Sarkar IN**, Lussier YA. "People, Organizational, and Leadership Factors Impacting Informatics Support for Clinical and Translational Research." BMC Medical Informatics and Decision Making. 2013 Feb 6;13:20.

33. Tharp WG, **Sarkar IN**. "Origins of Amyloid-β." BMC Genomics. 2013 Apr 30; 14:290.
34. Sharma V, **Sarkar IN**. "Leveraging biodiversity knowledge for potential phyto-therapeutic applications." Journal of the American Medical Informatics Association. 2013 May 9; 20(4): 668-679.
35. Sharma V, **Sarkar IN**. "Leveraging Concept-based Approaches to Identify Potential Phyto-therapies." Journal of Biomedical Informatics. 2013 Jul-Aug;20(4):668-79.
36. Sateriale A, Bessoff K, **Sarkar IN**, Huston CD. "Drug repurposing: mining protozoan proteomes for targets of known bioactive compounds." Journal of the American Medical Informatics Association. 2014 Mar-Apr;21(2):238-44.
37. Nabhan AR, **Sarkar IN**. "Structural network analysis of biological networks for assessment of potential disease model organisms." Journal of Biomedical Informatics. 2014 Feb;47:178-91.
38. Scotch M, Mei C, Makonnen YJ, Pinto J, Ali A, Vegso S, Kane M, **Sarkar IN**, Rabinowitz P. Phylogeography of influenza A H5N1 clade 2.2.1.1 in Egypt. BMC Genomics. 2013 Dec 10;14:871.

Other Peer-Reviewed Publications (conference proceedings, reviews, and editorials)

39. **Sarkar IN** and Rindflesch TC. "Discovering Protein Similarity Using Natural Language Processing." AMIA Annu Symp Proc 677–681. 2002.
40. **Sarkar IN**, Cantor MN, Hartel F, Bodenreider O, Lussier YA. "An Evaluation of Hybrid Methods for Matching Biomedical Terminologies: Mapping the Gene Ontology to the UMLS." Stud Health Technol Inform 95:62–7. 2003.
41. **Sarkar IN**, Cantor MN, Bodenreider O, Lussier YA. "GenesTrace: Phenomic Knowledge Discovery Via Structured Terminology." Pacific Symposium Biocomputing 10:103–114. 2005.
42. **Sarkar IN**. Phylogenetics in the modern era. J Biomed Inform. 2006 Feb;39(1):3-5. Epub 2005 Dec 9.
43. **Sarkar IN**, Agrawal A. "Literature Based Discovery of Gene Clusters Using Phylogenetic Methods." AMIA Annu Symp Proc 689–693. 2006.
44. **Sarkar IN**. "Biodiversity Informatics: Organizing and Linking Information Across the Spectrum of Life." Briefings in Bioinformatics. 2007 8(5):347–57.
45. **Sarkar IN**. Biodiversity informatics: the emergence of a field. BMC Bioinformatics. 2009 Nov 10;10 Suppl 14:S1. doi: 10.1186/1471-2105-10-S14-S1.
46. **Sarkar IN**, Schenk R, Miller H, Norton CN. "LigerCat: Using 'MeSH Clouds' from Journal, Article, or Gene Citations to Facilitate the Identification of Relevant Biomedical Literature." AMIA Annual Meeting, San Francisco. AMIA Annu Symp Proc 563-567. 2009.
47. Butte AJ, **Sarkar IN**, Ramoni M, Lussier Y, Troyanskaya O. Selected proceedings of the First Summit on Translational Bioinformatics 2008. BMC Bioinformatics. 2009 Feb 5;10 Suppl 2:I1. doi: 10.1186/1471-2105-10-S2-I1.
48. Lussier YA, **Sarkar IN**. Selected proceedings of the 2009 Summit on Translational Bioinformatics. BMC Bioinformatics. 2009 Sep 17;10 Suppl 9:I1. doi: 10.1186/1471-2105-10-S9-I1.
49. Chen ES, Melton G, Engelstad M, **Sarkar IN**. "Standardizing Clinical Document Names Using the HL7/LOINC Document Ontology and LOINC Codes." AMIA Annu Symp Proc 101-105. 2010.
50. **Sarkar IN**. "Leveraging Biomedical Ontologies and Annotation Services to Organize Microbiome Data from Mammalian Hosts." AMIA Annu Symp Proc 717-721. 2010.
51. **Sarkar IN**. "Biomedical Informatics and Translational Medicine." Journal of Translational Medicine 2010 Feb 26;8:22.

52. Chen ES, **Sarkar IN**. "Towards Structuring unstructured GenBank Metadata for enhancing Comparative Biological Studies." AMIA Summit on Translational Bioinformatics. 2011. 2011:6-10.
53. Chen ES, Manaktala S, **Sarkar IN**, Melton G. "A Multi-Site Content Analysis of Social History Information in Clinical Notes." AMIA Annu Symp Proc. 2011. 2011;2011:6-10.
54. McCray AT, Gefeller O, Aronsky D, Leong TY, **Sarkar IN**, Bergemann D, Lindberg DA, van Bemmel JH, Haux R. "The birth and evolution of a discipline devoted to information in biomedicine and health care. As reflected in its longest running journal." Methods of Information in Medicine. 2011 Dec 6;50(6):491-507.
55. Hasman A, Ammenwerth E, Dickhaus H, Knaup P, Lovis C, Mantas J, Maojo V, Martin-Sanchez FJ, Musen M, Patel VL, Surján G, Talmon JL, **Sarkar IN**. "Biomedical informatics - a confluence of disciplines?" Methods of Information in Medicine. 2011 Dec 6;50(6):508-24.
56. Bellazzi R, Diomidous M, **Sarkar IN**, Takabayashi K, Ziegler A, McCray AT. "Data analysis and data mining: current issues in biomedical informatics." Methods of Information in Medicine. 2011 Dec 6;50(6):536-44.
57. **Sarkar IN**, Payne PR. The joint summits on translational science: crossing the translational chasm. J Biomed Inform. 2011 Dec;44 Suppl 1:S1-2. doi: 10.1016/j.jbi.2011.11.011. Epub 2011 Dec 2.
58. **Sarkar IN**. Selected papers from the 2011 Summit on Translational Bioinformatics. J Biomed Inform. 2011 Dec;44 Suppl 1:S3-4. doi: 10.1016/j.jbi.2011.11.014. Epub 2011 Dec 2.
59. **Sarkar IN**, Butte AJ, Lussier YA, Tarczy-Hornoch P, Ohno-Machado L. "Translational Bioinformatics: Linking Knowledge Across Biological and Clinical Realms." Journal of the American Medical Informatics Association. 2011 Jul-Aug;18(4):354-7.
60. Melton GB, Manaktala S, **Sarkar IN**, Chen ES. "Social and behavioral history information in public health datasets." AMIA Annual Symposium; 2012. 2012:625-34.
61. Chen ES, Melton GB, Burdick TE, Rosenau PT, **Sarkar IN**. "Characterizing the use and contents of free-text family history comments in the electronic health record." AMIA Annual Symposium; 2012. 2012:85-92.
62. Nabhan AR, **Sarkar IN**. "Mining Disease Fingerprints From Within Genetic Pathways." AMIA Annual Symposium; 2012. 2012:1320-9.
63. **Sarkar IN**, Chen ES. "Determining compound comorbidities for heart failure from hospital discharge data." AMIA Annual Symposium; 2012. 2012:809-18.
64. Nabhan AR, **Sarkar IN**. "The Impact of Taxon Sampling On Phylogenetic Inferencing: A Review of Two Decades of Controversy." Briefings in Bioinformatics. 2012 Jan;13(1):122-34.
65. **Sarkar IN**. Evaluation of biomedical informatics innovations and their impact on public health. Methods Inf Med. 2012;51(2):93-4.
66. Chen ES, Melton GB, **Sarkar IN**. Translating standards into practice: experiences and lessons learned in biomedicine and health care. J Biomed Inform. 2012 Aug;45(4):609-12. doi: 10.1016/j.jbi.2012.06.006. Epub 2012 Jun 30.
67. Sharma V, **Sarkar IN**. "Bioinformatics Opportunities for Identification and Study of Medicinal Plants." Briefings in Bioinformatics. 2013 Mar;14(2):238-50.
68. **Sarkar IN**. "Bringing Genome Tests into Clinical Practice." IMIA Yearbook of Medical Informatics 2013. 2013: 172-174.
69. **Sarkar IN**, Chen ES, Rosenau PT, Storer MB, Anderson B, Horbar JD. Using Arden Syntax to Identify Registry-Eligible Very Low Birth Weight Neonates from the Electronic Health Record. AMIA Annual Symposium; 2014 (in press).

70. Chen ES, Carter EW, **Sarkar IN**, Winden TJ, Melton GB. Examining the Use, Contents, and Quality of Free-Text Tobacco Use Documentation in the Electronic Health Record. AMIA Annual Symposium; 2014 (in press).
71. Zhang Y, **Sarkar IN**, Chen ES. PubMedMiner: Mining and Visualizing MeSH-based Associations in PubMed. AMIA Annual Symposium; 2014 (in press).

Non-peer reviewed scientific or medical publications/materials in print or other media

Book Chapters

1. Hoyt RE, **Sarkar IN**. "Bioinformatics." In *Health Informatics: Practical Guide for Healthcare Information Technology Professionals* (5th Edition; RE Hoyt, A Yoshinhashi, N Bailey, Eds.). 2012.
2. **Sarkar IN**. "Translational Bioinformatics: Bridging the Biological and Clinical Divide." In *Translational Medicine: The Future of Therapy?* (J Mittra & C Milne, Eds.). CRC Press. 2013.
3. Chen ES, **Sarkar IN**. "Mining the Electronic Health Record for Disease-Specific Knowledge." In *Methods in Molecular Biology* (VD Kumar & HJ Tipney, Eds.). Humana Press. 2014.
4. Hoyt RE, **Sarkar IN**. "Bioinformatics." In *Health Informatics: Practical Guide for Healthcare Information Technology Professionals* (6th Edition; RE Hoyt, A Yoshinhashi, N Bailey, Eds.). 2014.
5. **Sarkar IN**. "Mining the Bibliome." In *Translational Informatics: Realizing the Promise of Knowledge Driven Healthcare* (P Payne & P Embi, Eds.). Springer. (In Press).
6. **Sarkar IN**. "Challenges in Identifying Potential Phytotherapies in Biomedical Literature." In: *Evidence Based Validation of Herbal Medicine* (P Mukherjee, Ed.). Elsevier. (In Press).

Book

1. **Sarkar IN**, editor. *Methods in Biomedical Informatics: A Pragmatic Approach*. Academic Press 2013.

Thesis

1. **Sarkar IN**. *Biocomputing: Addressing the Black–Box Syndrome.* [Bachelor's Capstone Essay] Lyman Briggs School, College of Natural Science, Michigan State University, 1999.
2. **Sarkar IN**. *Automated Techniques for the Identification and Classification of Evolutionarily Significant Genomic Features*. [Doctoral Dissertation] Graduate School of Arts and Sciences at the College of Physicians and Surgeons, Columbia University, 2004.

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings

1. **Sarkar IN**, Koslowsky DJ. "Mitochondrial Cleavage mRNA Cleavage/Polyadenylation Regulation in Pathogenic African Trypanosomes." Michigan State University 1997 Undergraduate Research Forum, East Lansing, Michigan. 1997.
2. **Sarkar IN**, Luckie DB. "Biocomputing: Learning How to Write Programs to Solve Problems." Michigan State University Undergraduate Research Forum, East Lansing, Michigan. 1998.
3. **Sarkar IN**, Malesewski JJ, Luckie DB. "Biocomputing in the Undergraduate Classroom." AAAS Annual Meeting and Innovation Exposition, San Francisco, California. 2001.

4. **Sarkar IN**, Planet PJ, DeSalle R, Figurski DH. "Knowledge Aggregation and Separation Through a Novel Classification Algorithm." AAAS Annual Meeting and Innovation Exposition, San Francisco, California. 2001.
5. **Sarkar IN**, Planet PJ, DeSalle R, Figurski DH. "Knowledge Acquisition of Organized Sets (KAOS) of Clinical Data." AMIA Annual Meeting, Washington, DC. 2001.
6. **Sarkar IN**, Cantor MN, DeSalle R, Lussier YA. "Exploring SNOMED Using Phylogenetic Analysis Tools." AMIA Annual Meeting, Washington, DC. 2002.
7. Cantor MN, **Sarkar IN**, Gelman R, Lussier YA. "Hybrid Lexical Methods for Mapping the Gene Ontology to the UMLS." Pacific Symposium on Biocomputing, Kaua'i, HI. 2003.
8. **Sarkar IN**, Cantor MN, Bodenreider O, Lussier YA. "GenesTrace: Biological Knowledge Discovery via Structured Terminology." MedInfo 2004: 11th World Congress on Medical Informatics, San Francisco, CA. 2004.
9. **Sarkar IN**, Planet PJ, DeSalle R. "TEPC: Total Evidence Phylogenetic Correlation of Microbial Phenotypes and Genotypes." ISMB 2005: 13th Annual International Conference on Intelligent Systems for Molecular Biology, Detroit, MI. 2005.
10. Catapano T, Agosti D, Sautter G, Koning D, Boehm K, Johnson NF, Heidorn PB, Moritz TD, **Sarkar IN**, Stephenson C. "TaxonX: A Lightweight and Flexible XML Schema for Markup of Taxonomic Treatments." TDWG, St Louis, MO. 2006.
11. Rach J, DeSalle R, **Sarkar IN**, Schierwater B, Hadrys H. "Character Based DNA–Barcoding for Identifying Conservation Units in Odonata." CBoL DAWG, National Museum of Natural History, Paris, France. 2006.
12. **Sarkar IN**, DeSalle R. "Automated Barcoding Using the Characteristic Attribute Organization System." CBoL DAWG, National Museum of Natural History, Paris, France. 2006.
13. **Sarkar IN**, Remsen DP. "Enabling Biological Knowledge Integration Through Scientific Nomenclature." International Society for Phylogenetic Nomenclature Conference, Yale University, New Haven, CT. 2006.
14. Umejei C, **Sarkar IN**. "zMedline: A Medline–Based Content Management System." AMIA Annual Meeting, Washington, DC: 469–473. 2006.
15. **Sarkar IN**, Leary PR, Norton CN. "A Customizable 'Mash–up' for Model and Disease Organisms." Medical Library Association Annual Meeting, Philadelphia, PA. 2007.
16. **Sarkar IN**. "Public Health Through the Lens of Biodiversity." AMIA Spring Congress, Orlando, FL. 2007.
17. **Sarkar IN**. "Deriving and Using Barcode Based Diagnostics for Information Retrieval." Second International Barcode of Life Conference, Taipei, Taiwan. 2007.
18. **Sarkar IN**. "Using Biomedical Ontologies To Enable Morphology Based Phylogenetics: A Feasibility Study for Fishes." Bio-Ontologies Special Interest Group 2010, Intelligent Systems for Molecular Biology, Boston, MA. 2010.
19. Payne PRO, **Sarkar IN**. "The Joint Summits on Translational Science: Reflections and Aspirations." 2011 AMIA Annual Symposium. Washington, DC.
20. Bhavnani S, Bassler K, **Sarkar IN**, Shaikh A. "Can Network Visualization and Analysis Accelerate Medical Discoveries? Theoretical, Applied, and Funding Perspectives." 2011 AMIA Annual Symposium. Washington, DC.
21. **Sarkar IN**. "A Vector Space Model Based Approach to Identify Genetically Related Diseases." 2011 AMIA Annual Symposium. Washington, DC.
22. McFarland CJ, Nickl CK, Osborne BW, **Sarkar IN**, Dostmann WR. "cGMP-dependent protein kinase from Toxoplasma gondii: functional expression in E. coli and molecular characterization. 5th International Conference on cGMP, Halle (Saale), Germany. 2011.

23. Payne PRO, **Sarkar IN**, Tarczy-Hornoch P, Tonellato PJ. "Knowledge Synthesis for in silico Science: Lessons Learned and Future Directions." AMIA Summit on Translational Bioinformatics. San Francisco, CA. 2012.
24. **Sarkar IN**. "Identification of Potential Model Organisms for Disease Using A Vector Space Model Approach." AMIA Summit on Translational Bioinformatics. San Francisco, CA. 2012
25. **Sarkar IN**, Chen ES, Kappel SJ. "Resolving and Standardizing Providers within Administrative Data." AMIA Annual Symposium. Washington, DC. 2013
26. Chen ES, Carter EW, Winden TJ, **Sarkar IN**, Melton GB. "Development of a comprehensive family health history information model." AMIA Annual Symposium. Washington, DC. 2013

Narrative Report

As the Director of Biomedical Informatics in the Center for Clinical and Translational Science in addition to being an Assistant Professor on the Tenure Track in Microbiology and Molecular Genetics, I have found it essential to maintain a balance of teaching, advising/mentoring, scholarship, and service responsibilities. Collectively, my respective accomplishments in these areas have contributed equally to my career as a biomedical informatician.

My research program is focused on the development of biomedical informatics approaches for addressing challenges across the spectrum of biomedicine. My 71 career publications (38 of which are journal publications of novel research contributions) reflect a range of key contributions to the field of biomedical informatics. Additionally, a diverse portfolio of federal, state, private, and foundation extramural funding has directly supported my research continuously since 2006.

In addition to teaching 3 courses that I have developed as well delivering 8 guest lectures as an expert in bioinformatics, I have been involved with academic advising at both the undergraduate and graduate levels. My interactions with 10 undergraduate and 19 graduate students have formed the motivation to develop pragmatic approaches for training the next generation of scientists. To further support this, I have recently completed the editing of a new textbook that covers foundational methods used in biomedical informatics that is designed to fill an educational need nationally.

I have been actively involved in leadership roles within the professional society for biomedical informatics (AMIA), currently serving as the Chair of the Education Committee, a member of the Board of Directors, and as a member of the scientific program committee for a number of meetings. Finally, through my service on 8 editorial boards (including one as an associate editor) and 15 grant review committees, I have been able to directly participate in the scholarly activities associated with the advancement of biomedical informatics both nationally and internationally.

Perhaps the unifying theme in my accomplishments is that I am devoted to being part of the future of biomedical informatics and am firm in my belief that involvement should be at all levels. Still, it is the foundational experiences with colleagues and students that provide the substrate for inspiring me to develop novel approaches for transforming biomedical data in new knowledge.