

PERSONAL DATA

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OBJECTIVE

- Career in research and teaching in the area of Biomedical Informatics based on my dual training as a physician and a computational scientist

EDUCATION

- M.B.B.S., Jawaharlal Institute of Post-Graduate Medical Education and Research (JIPMER), (A premier national institution), Pondicherry, India, 1990
- M.D., Clinical Biochemistry, JIPMER, Pondicherry, India, 1993
- Ph.D., Biochemistry, Case Western Reserve University (CWRU), Cleveland, OH, 1999
- M.S., Computer Science, University of Missouri at Kansas City, 2002

PRESENT POSITION

- Assistant Professor, Department of Computer Science and Electrical Engineering, School of Computing and Engineering (SCE), University of Missouri-Kansas City (UMKC), Kansas City, Missouri. Since 2002

PROFESSIONAL HISTORY

- Visiting Scientist, Stowers Institute for Biomedical Research, Kansas City, Missouri. Summer 2002
- Visiting Assistant Professor, Computer Science, SCE, University of Missouri-Kansas City (UMKC), Missouri. Spring 2002
- Postdoctoral Fellow, Biochemistry & Molecular Biology, Kansas University Medical Center, Kansas City, Kansas. 1999-2001. Advisor: Dr. Hideaki Nagase
- Graduate Research Assistant, Biochemistry, Case Western Reserve University, Cleveland, Ohio. 1994-1998. Advisor: Dr. Paul Carey
- Graduate Teaching Assistant, Biochemistry, Ohio State University, Columbus, Ohio. 1993-1994
- Junior Resident, Biochemistry, JIPMER, India. 1990-1993

PROFESSIONAL MEMBERSHIPS

- Member of ISCB (The International Society of Computational Biology). Since 2002

AWARDS

- Research grant from the National Science Foundation (NSF) for the project ‘‘SGER: ARTISAN - Art Inspired Service Oriented Architecture Design.’’ Role: Co-PI. 2007-2009
- Research grant from University of Missouri-Kansas City Research Board for the project ‘‘MachineProse Trove: A Semantic Index of Knowledge.’’ Role: PI. 2006
- Research grant from UMRB (University of Missouri Research Board) for the project ‘‘Tandem Machine Learning for the Prediction of Gene Targets for Transcription Factors.’’ Role: PI. 2004-2005
- Teaching grant from the Center for Creative Studies at UMKC for the course ‘‘Learning Metamodels in Biology from the Nobel Prizes.’’ Role: PI. 2004-2005

HONORS

- Upsilon Pi Epsilon
- Featured as Favorite Professor in UMKC Perspectives Magazine, Spring 2006
- Nominated to UMKC Annual Faculty & Staff Appreciation Luncheon, 2005
- University of Missouri New Faculty Teaching Scholar. 2003-2004

RESEARCH INTERESTS

- Machine learning and Data mining approaches to problems in biology and medicine, Knowledge Representation, Modeling biological systems, Sequence and structural analyses of biomolecules

TEACHING EXPERIENCE

Instructor:

- CS394R (Applied Probability). Spring 2007

- CS490MB (Learning Metamodels in Biology from the Nobel Prizes – New Course). Every Fall since 2004
- CS566 (Introduction to Bioinformatics – New Course). Every Fall since 2002
- CS567 (Machine Learning for Bioinformatics – New Course). Every Spring since 2003
- CS470 (Introduction to Databases). 2002
- Instructor for clinical biochemistry for medical students at JIPMER. 1990-1993
- Instructor for general biology lab section at Ohio State University. Spring 1994

Teaching assistant:

- “General Biochemistry” course at Case Western Reserve University. Fall 1995
- “Proteins and Enzymes” course at Case Western Reserve University. Fall 1996 and Fall 1997

JOURNAL PUBLICATIONS

1. Dinakarbandian, D., Lee, Y and Dinakar, C. 2007. Applications of Medical Informatics in Allergy/Immunology. *Annals of Allergy, Asthma & Immunology*. 99(1): 2-9
2. Dinakarbandian, D., Tong, T. and Lee, Y. 2007. A Pragmatic Approach to Mapping Open Biomedical Ontologies. *International Journal of Bioinformatics Research and Applications (IJBRA)*, Special Issue on Ontologies for Bioinformatics. 3(3): 341-365
3. Dinakarbandian, D., Lee, Y., Vishwanath, K., Lingambhotla, R. MachineProse: An Ontological Framework for Scientific Assertions. 2006. *J Am Med Inform Assoc*. 13(2): 220-232
4. Dinakarbandian, D., Raheja, V., Mehta, S., Rogan, P.K. 2005. Tandem Machine Learning for the Identification of Genes Regulated by Transcription Factors. *BMC Bioinformatics*. 6: 204
5. Mehta, S., Dinakarbandian, D. 2005. ConsDiff: An Algorithm for the Detection of Conserved Differences between Protein Sequences. *Data & Knowledge Engineering*. 53(1): 31-43
6. Dinakarbandian, D., Morrisette, V., Chaudhary, S., Amini, K. and Van Horn, J.D. 2004. An Informatics Search for the Low-Molecular Weight Chromium-Binding Peptide. *BMC Chemical Biology*. 4(1):2
7. Linda C., Dinakarbandian, D., Yoshida, N., Visse, R., Nagase, H. 2004. Collagenase Unwinds Triple Helical Collagen Prior to Peptide Bond Hydrolysis. *EMBO J*. 23(15): 3020-30
8. Dinakarbandian, D., Dong, J., Carey, P. R. 2000. A Variable Temperature Mount for a Microliter-Raman Cell. *Appl. Spectrosc*. 54(1): 153-154
9. Chung, L., Shimokawa, Ki., Dinakarbandian, D, Grams, F., Fields, G.B., Nagase, H. 2000. Identification of the ¹⁸³RWTNNFREY¹⁹¹ Region as a Critical Segment of Matrix Metalloproteinase 1 for the Expression of Collagenolytic Activity. *J. Biol. Chem*. 275(38): 29610-29617
10. Brew, K., Dinakarbandian, D., Nagase, H. 2000. Tissue Inhibitors of Metalloproteinases: Evolution, Structure and Function. *Biochim. Biophys. Acta*. 1477(1-2): 267-283
11. Dinakarbandian, D., Carey, P. R. 1999. Molecular Structure of 5-Methyl Thiophene Acryloyl Ethyl Thiolester: A Vibrational Spectroscopic and Density Functional Theory Study. *Biospectroscopy*. 5: 201-218
12. Dinakarbandian, D., Shenoy B. C., Hilvert, D., McRee, D. E., McTigue, M., Carey, P. R. 1999. Electric Fields in Active Sites: Substrate Switching from Null to Strong Fields in Thiol- and Selenol-Subtilisins. *Biochemistry*. 38(20): 6659-6667
13. Dong, J., Dinakarbandian, D., Carey, P. R. 1998. Extending the Raman Analysis of Biological Samples to the 100 Micromolar Concentration Range. *Appl. Spectrosc*. 52(8): 1117-1122
14. Dinakarbandian, D., Shenoy, B., Pusztai-Carey, M., Malcolm, B. A., Carey, P. R. Active Site Properties of the 3C Proteinase from Hepatitis A Virus (A Hybrid Cysteine/Serine Protease) Probed by Raman Spectroscopy. 1997. *Biochemistry*. 36(16): 4943-4948

CONFERENCE PAPERS (PEER-REVIEWED)

1. Park, M., Sanghvi, J., Dinakarbandian, D. 2007. INDARE - An Indexed DAG of Regular Expressions for Selecting Position Frequency Matrices. (*Proceedings of the 2007 IEEE International Conference on Bioinformatics & Biomedicine, Workshop on High-Throughput Data Analysis for Proteomics and Genomics*. Silicon Valley, USA)
2. Dasgupta, S., Dinakarbandian, D., Lee, Y. 2007. A Panoramic Approach to Integrated Evaluation of Ontologies in the Semantic Web. (*Proceedings of the 6th International Semantic Web Conference – 5th International EON Workshop*. Busan, Korea)
3. Mathur, S., Dinakarbandian, D. 2007. A New Metric to Measure Gene Product Similarity. (*Proceedings of the 2007 IEEE International Conference on Bioinformatics & Biomedicine*, Silicon Valley, USA)
4. Dinakarbandian, D., Tong, T. and Lee, Y. 2007. Modeling Biomedical Assertions in the Semantic Web. (*Proceedings of the 22nd ACM Symposium on Applied Computing (SAC)*, Seoul, Korea)

5. Viswanath, V., Tong, T., Dinakarpanthian, D., Lee, Y. 2006. Transformation Modeling for Congenital Heart Defect Diagrams. (*Proceedings of the American Medical Informatics Association (AMIA) Annual Symposium*, Washington, DC, USA)
6. Mehta, S., Dinakarpanthian, D. 2003. ConsDiff: Identification of Conserved Differences between Sets of Amino Acid Sequences. (*Proceedings of the 14th International Conference on Database and Expert Systems Applications (DEXA)*, Prague, Czech Republic)
7. Dinakarpanthian, D., Kumar, V. 2002. BIOMIND – A System for Protein Property Prediction by Property Proximity Profiles. (*Proceedings of the 17th ACM Symposium on Applied Computing Bioinformatics Track*, Madrid, Spain)

BOOK CHAPTERS

- Dinakarpanthian, D., Dinakar, C. 2007. Bioinformatics in Allergy: A Powerful Tool Joining Science and Clinical Applications. *Allergy Frontiers: From Epigenetics to Future Perspectives*. Springer Japan KK. Editors: Pawankar, R. Holgate, S. and Rosenwasser, L. (In Press)

INVITED TALKS

- MachineProse: An Ontological Framework for Scientific Research. School of Computer & Engineering Seminar Series, University of Missouri-Kansas City. Feb 23rd, 2007
- Bioinformatic Stratagems for Decoding Knowledge from Data and Encoding Knowledge as Data. MRRC Seminar Series, Kansas University Medical Center, Kansas City, Kansas. Nov 18th, 2005
- Towards Discernment in Proteins, Genes and Literature. Genome Sequencing Center, Washington University, Missouri. April 29th, 2005
- Bioinformatics of Asthma. Workshop on Practical Procedures in Allergy Testing, sponsored by Medical Council of India. JIPMER, Pondicherry, India. Jan 1st, 2005
- Finding Functional Residues and Domains in Proteins and Proteomes. Oral Biology Seminar Series, UMKC. Jun 9th, 2004
- Machine Learning Approaches to Solving the Classical 2-class Problem in Bioinformatics. Computational Fluid Dynamics Research Corporation, Huntsville, Alabama. March 19th, 2004
- A Bioinformatics view of Proteomics. Proteomics group meeting, UMKC. Jan 13th, 2004
- Meta models in biology: Matching experiment with theory. Department of Physics, UMKC. Sep 12th, 2003
- Discovery of novel conserved protein domains by sequence partitioning using the libraries of known domains. 3M, St. Paul, Minnesota. July 21st, 2003
- An Introduction to Bioinformatics: A Peek behind the Hype. Student chapter of the ACM at UMKC. Feb 17th, 2003
- Bioinformatics: What, When, Why? Invited presentation at JIPMER, Pondicherry, India. Jan 6th, 2003

SERVICE

- Review of manuscripts for the journals *Journal of Biomedical Informatics*, *Journal of Biological Chemistry*, *IBM Journal of Research & Development*, *Journal of Allergy and Clinical Immunology*
- Conference Program Committee Member for the IASTED International Conference on Computational and Systems Biology (CASB 2006), International Workshop on Biological Data Management, International Conference on Database and Expert Systems Applications (DEXA 2004, 2005), 1st International Conference on Distributed Computing & Internet Technology (ICDCIT 2004)
- Member of the Publications Committee of the International Society for Computational Biology (ISCB). Member of the Public Affairs & Policies Committee, ISCB. Since 2007
- Member of UMKC Committee on Bioinformatics: Major contribution to the development of a curriculum for a graduate program in Bioinformatics at UMKC
- Master's Thesis Supervision (Chair): Sunil Tadaka, Fall 2003; Arvind Krishnaswamy, Sachin Mathur, Summer 2004; Brian Hare, Arpan Biswas, Fall 2004; Vikram Gollakota, Spring 2005; Jubin Sanghvi, Fall 2005; Sunil Wagh, Balaji Jayaraman, Spring 2006; Venetia Raheja, Fall 2006; John Howard, Spring 2007

CONFERENCES AND WORKSHOPS

- 15th International Conference on Intelligent Systems for Molecular Biology (ISMB) – Oral presentation in Highlights Track, Vienna, Austria, 2007
- Gordon conference on Bioinformatics: From Prediction to Inference, Hanover, New Hampshire, 2007
- 12th International Conference on Intelligent Systems for Molecular Biology (ISMB) – Oral & Poster presentations, Glasgow, UK, 2004

- 14th International Conference on Database and Expert Systems Applications (DEXA) – Oral Presentation, Prague, Czech Republic, 2003
- Gordon conference on Bioinformatics: From Prediction to Inference, Oxford, UK, 2003
- 10th International Conference on Intelligent Systems for Molecular Biology (ISMB) – Poster presentation, Edmonton, Canada, 2002
- 17th ACM Symposium on Applied Computing, Madrid, Spain-Oral presentation, 2002
- Gordon conference on matrix metalloproteinases, New London-poster presentation, 1999
- Ohio super computer workshop on computational chemistry, Cleveland, 1998
- Ohio super computer workshop on the Cray T94, Columbus, 1998
- XVth International conference on Raman spectroscopy, Pittsburgh-poster presentations, 1996