

Zhengdeng Lei

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OBJECTIVE

Seek a full-time position in bioinformatics, statistics, computer science or related field

EDUCATION

Ph.D. Bioinformatics, University of Illinois at Chicago	GPA 3.8/4.0	2003 - 2007
M.S. Chemistry, Chinese Academy of Sciences, China	GPA 3.8/4.0	1998 - 2001
B.S. Chemistry, Peking University, China	GPA 3.3/4.0	1994 - 1998

WORK EXPERIENCE

Keyou Software Company, China 2001 - 2003

Position: Team Sub-leader / Team Leader

Job description: Report the project status to Project Leader
Write codes and test
Write documents for class, function description and provide examples
Give lectures to my colleagues for c/c++ training

Project 1: COSMOS: Toyota's e-commerce system, Pro*C, PL/SQL, Oracle & VBA

Project 2: Roller pole inspector: A quality control system for precision instruments based on edge detection, Visual C++

Project 3: Company management system, Java (struts framework), Oracle

Project 4: Sales management system, Visual Basic, SQL Server

COMPUTER SKILL

Language: c/c++ (MFC & STL), Perl, Java, VB(including VBA), Matlab, R, SAS, etc.

Database: Oracle(PL/SQL), SQL Server, mysql.

Very strong programming skill (since 1991), very fast learner

RESEARCH IN BIOINFORMATICS

Completed projects:

- Combine Fourier transformation and Support Vector Machines to predict protein subcellular localizations.
Zhengdeng Lei, Yang Dai; *Proc. of 4th ACM SIGKDD Workshop*, 11-17, 2004
- Design new kernels for Support Vector Machines based on protein evolutionary information, statistical learning.
Zhengdeng Lei, Yang Dai; *Proc. of International Conf. on Comp. Sci.*, 903-910, 2005
Zhengdeng Lei, Yang Dai; *LNCS Trans. on Comp. Sys. Biology II*, 3680:48-58, 2005
Zhengdeng Lei, Yang Dai; *BMC Bioinformatics*, 6:291, 2005

- Access protein similarity with Gene Ontology, and utilize it in prediction of protein subnuclear localizations.
Zhengdeng Lei, Yang Dai; *BMC Bioinformatics*, 7:491, 2006
- Help Prof. Peter Williams identify the copper binding motif at promoter regions in 14 chromosomes of *Cryptococcus neoformans* genome.
- Build Naive Bayesian classifiers and SVM models to select diagnostic markers for predicting the probability of prostate cancer recurrence based on the CPCTR (Cooperative Prostate Cancer Tissue Resource) dataset. Collaborate with the researchers in the Biostatistics Core of the Cancer Center, UIC, who carried out the Cox regression model.
- Build and maintain a web server: Subnuclear Compartments Prediction System
<http://array.bioengr.uic.edu/subnuclear.htm>

Undertaking projects (almost finished):

- Develop a (boosted) Naive Bayesian classifier for the prediction of protein subnuclear localization based on the following information: sequence (our sequence encoding method), Gene Ontology (GO), and KEGG Orthology (KO). This may also be applied to the genome-wide prediction of candidate genes for diseases.
- Select significant GO terms, i.e. GO enrichment / depletion in specific classes based on hypergeometric distribution, z-test, or entropy, then refine the model above.

TEACHING

Teaching assistant "Introduction to Biostatistics" UIC, Spring/Fall 2006, Spring 2007

PROFESSIONAL ACTIVITIES

Peer review for journals: (1) Bioinformatics; (2) FEBS Letters

Review for conference: IEEE EMBS 2006

Biomedical Engineering Society (BMES) membership

PUBLICATIONS IN BIOINFORMATICS

[J-Journal, C-Conference, P-Poster, PT-Patent]

The reprints are available at my home page:

<http://array.bioengr.uic.edu/~zlei2/index.htm>

Journal papers

[J13] Zhengdeng Lei, Yang Dai; Assessing protein similarity with Gene Ontology and its use in subnuclear localization prediction; *BMC bioinformatics*, 2006, 7:491

[J12] Zhengdeng Lei, Yang Dai; An SVM-based system for predicting protein subnuclear localizations; *BMC bioinformatics*, 2005, 6:291

[J11] Zhengdeng Lei, Yang Dai; A class of new kernels based on a matrix of high-scored pairs of k-peptides and its applications in prediction of protein sub-cellular localization; *LNCS Transactions on Computational Systems Biology II*, Springer-Verlag, 2005, 3680, 48-58

Conference papers

[C2] Zhengdeng Lei, Yang Dai; A new kernel based on a matrix of high-scored pairs of tri-peptides and its applications in prediction of protein sub-cellular localization; *Proceedings of International Workshop on Bioinformatics Research and Applications*, 2005, 3515, 903-910

[C1] Zhengdeng Lei, Yang Dai; A novel approach for prediction of protein subcellular localization from sequence using Fourier analysis and support vector machines; *Proceedings of 4th ACM SIGKDD Workshop on Data Mining in Bioinformatics*, 2004, p11-17

Posters

[P3] Zhengdeng Lei and Yang Dai; Improve protein subnuclear localization prediction by incorporating Gene Ontology; *Annual Fall Meeting of the Biomedical Engineering Society (BMES)*, Chicago, October 11-14, 2006

[P2] Zhengdeng Lei and Yang Dai; A new kernel based on a matrix of high-scored pairs of k-peptides and its application in protein subcellular localization prediction; *Annual Meeting of the International Society for Computational Biology (ISCB)*, Michigan, June 25-29, 2005

[P1] Zhengdeng Lei and Yang Dai; A support vector machines approach to predict protein subcellular localization; *Proteomics Symposium 2004*, Chicago, April 17, 2004

Presentations

[2] International Conference on Computational Science, Emory University, Atlanta, 2005

[1] Sigma Xi Research Forum, University of Illinois at Chicago, Chicago, 2005

MORE PUBLICATIONS IN CHEMISTRY

Journal papers

[J10] Zhong Guo, Songyun Xu, Zhengdeng Lei, Hanfa Zou, Baochuan Guo; Immobilized metal-ion chelating capillary microreactor for peptide mapping analysis of proteins by matrix assisted laser desorption/ionization-time of flight-mass spectrometry; *Electrophoresis* 2003, 24, 3633-3639

[J9] Mingliang Ye, Hanfa Zou, Renan Wu, Hongjing Fu, Zhengdeng Lei; Modeling and optimization for separation of ionic solutes in pressurized flow Capillary electrochromatography; *J. Sep. Sci.*, 2002, 25, 416-426

[J8] Mingliang Ye, Hanfa Zou, Zhen Liu, Zhengdeng Lei, Renan Wu, Jianyi Ni; Study of competitive binding of enantiomers to protein by affinity capillary electrochromatography; *J. Pharm. Biomed. Anal.*, 2002, 27, 651-660

[J7] Mingliang Ye, Hanfa Zou, Zhengdeng Lei, Renan Wu, Zhen Liu, Jianyi Ni; Enantiomer separation by strong anion-exchange capillary electrochromatography with dynamically modified sulfated beta-cyclodextrin; *Electrophoresis* 2001, 22, 518-525

[J6] Zhengdeng Lei, Mingliang Ye, Hanfa Zou, Renan Wu, Jianyi Ni; Separation of Anionic Compounds by Strong Anion-Exchange Capillary Electrochromatography; *Chinese J. Anal. Chem.* 2001, 29:262-266

[J5] Renan Wu, Hanfa Zou, Mingliang Ye, Zhengdeng Lei, Jianyi Ni; Capillary electrochromatography for separation of peptides driven with electrophoretic mobility on monolithic column; *Anal. Chem.*, 2001, 73, 4918-4923

[J4] Mingliang Ye, Hanfa Zou, Zhengdeng Lei, Renan Wu, Jianyi Ni; Hydrophilic interaction capillary electrochromatography for separation of polar compounds; *LC&GC*, 2001, 19, 1076-1079

[J3] Renan Wu, Hanfa Zou, Mingliang Ye, Zhengdeng Lei, Jianyi Ni; Separation of basic, acidic and neutral compounds on CEC with uncharged monolithic capillary column modified with anionic and cationic surfactants; *Electrophoresis*, 2001, 22, 544-551

[J2] Mingliang Ye, Hanfa Zou, Zhengdeng Lei, Renan Wu, Zhen Liu, Jianyi Ni; Separation of acidic and neutral compounds by strong anion-exchange capillary electrochromatography dynamically modified with sodium dodecylsulfate; *Chromatographia* 2001, 53, 425-430

[J1] Mingliang Ye, Hanfa Zou, Zhen Liu, Zhengdeng Lei, Jianyi Ni; Study on the open tubular capillary affinity liquid chromatography; *J. Chromatogr. Sci.*, 2000, 38, 517-520

Patent

[PT1] Zhengdeng Lei, Zhong Guo, Hanfa Zou, Qingchun Zhang, Liang Kong; Construction and regeneration of an enzyme micro-reactor and its application in protein identification; *China Patent* (CN 01136860.8); 2001

REFERENCES

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Prof. Hui Lu

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