LIANG DING

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EDUCATION

University of Georgia, Athens, Georgia   *July 2016*
Ph.D., Computer Science

University of Texas - Pan America, Edinburg, Texas   *August 2011*
M.S., Computer Science

Zhengzhou University, Henan, China   *December 2008*
M.S., Applied Mathematics
B.S., Applied Mathematics

EXPERIENCE

St. Jude Children's Research Hospital   July 2016 - Present
Senior Software Engineer   *Memphis, TN*

· Performed administrative, troubleshooting and other support functions for NGS data processing pipelines running in two HPC clusters in research and clinical.
· Develops and implements novel analysis algorithms, softwares and pipelines for analyzing NGS sequencing data.
· Contributes bioinformatics analysis, data management, infrastructure design and development, manuscript preparation.

University of Georgia, Athens, Georgia   September 2011 - June 2016
Graduate Instructor   *Athens, Georgia*

· Lectured, oversaw in-class activities, and created all tests, quizzes, labs, projects for a fast-paced system programming course which held approximately 30 students.

Lab Instructor and Teaching Assistant
· Taught Java programming and eclipse.
· Designed and graded lab assignments, projects.
· Explained complex concepts in small group and held office hours for individual student discussion.

TECHNICAL STRENGTHS

Operating Systems	Mac OS X, Linux, Windows
Computer Languages	Python, C++/C, SQL, Bash, CWL, Latex, Javascript, Java, HTML, CSS
Databases	PostgreSQL, MySQL, SQLite
Tools	Git, SVN, Vim, Docker, Conda, Django, Travis CI

PUBLICATIONS

Peer Reviewed Journals

1. Silveira A.B., Kasper L.H., Fan Y., Jin H., Wu G., Shaw T., Zhu X., Larson J.D., Easton J., Shao Y., Yergeau D.A., Rosencrance C., Boggs K., Rusch M.C., Ding L., Zhang J., Finkelstein D., Noyes R.M., Russell B.L., Xu B., Broniscer A., Wetmore C., Pounds S.B., Ellison D.W., Zhang J., Baker S.J.. (2019) H3.3 K27M depletion increases differentiation and extends latency of diffuse intrinsic pontine glioma growth in vivo. Acta Neuropathologica. 137(4):637-655. doi: 10.1007/s00401-019-01975-4.

2. Hagiwara K., **Ding L.**, Edmonson, M.N., Rice, S.V., Newman, S., Meshinchi, S., Ries, R.E., Rusch, M., Zhang, J. (2019) RNAIndel: a machine-learning framework for discovery of somatic coding indels using tumor RNA-Seq data. bioRxiv 512749; doi: https://doi.org/10.1101/512749.

3. Xu K., **Ding L.**, Chang T.C., Shao Y., Chiang J., Mulder H., Wang S., Shaw T.I., Wen J., Hover L., McLeod C., Wang Y.D., Easton J., Rusch M., Dalton J., Downing J.R., Ellison D.W., Zhang J., Baker S.J., Wu G.. (2018) Structure and evolution of double minutes in diagnosis and relapse brain tumors. Acta Neuropathologica. 137(1):123-137. doi: 10.1007/s00401-018-1912-1.

4. Alexander T.B., Gu Z., Iacobucci I., Dickerson K., Choi J.K., Xu B., Payne-Turner D., Yoshihara H., Loh M.L., Horan J., Buldini B., Basso G., Elitzur S., de Haas V., Zwaan C.M., Yeoh A., Reinhardt D., Tomizawa D., Kiyokawa N., Lammens T., De Moerloose B., Catchpoole D., Hori H., Moorman A., Moore A.S., Hrusak O., Meshinchi S., Orgel E., Devidas M., Borowitz M., Wood B., Heerema N.A., Carrol A., Yang Y., Smith M.A., Davidsen T.M., Hermida L.C., Gesuwan P., Marra M.A., Ma Y., Mungall A.J., Moore R.A., Jones SJM., Valentine M., Janke L.J., Rubnitz J.E., Pui C., **Ding L**, Liu Y., Zhang J., Nichols K.E., Downing J.R., Cao X., Shi L., Pounds S., Newman S., Pei D., Guidry Auvil J.M., Gerhard D.S., Hunger S.P., Inaba H., Mullighan C.G.. The genetic basis and cell of origin of mixed phenotype acute leukaemia. (2018) Nature, 562(7727):373-379.

5. Mohebbi, M, **Ding, L.**, Malmberg, R.L., Momany, C, Rasheed, K, Cai, L. (2018) Accurate prediction of human miRNA targets via graph modeling of miRNA-target duplex. Journal of Bioinformatics and Computational Biology, 7:1850013.

6. **Ding, L.**, Xue, X., LaMarca, S., Mohebbi, M., Samad, A., Malmberg, R.L., Cai, L. (2015) Accurate Prediction of RNA Nucleotide Interactions with Backbone k-Tree Model", Bioinformatics, 31(16): 2660-2667.

Conference Proceedings

1. **Ding, L.**, Xue, X., LaMarca, S., Mohebbi M., Samad, A., Malmberg, R., and Cai, L. (2014) Abinitio prediction of RNA nucleotide interactions with backbone k-tree model", Proceedings of ECCB'14 Workshop on Computational Methods for Structural RNAs, Strasbourg France, 25-42.

2. **Ding, L.**, Samad, A., Xue, X., Huang, X., Malmberg, R., and Cai, L. (2014) Stochastic k-tree grammar and its application in bimolecular structure modeling", International Conference on Language and Automata Theory and Applications (LATA 2014) Vol 8370, 308-322.

3. **Ding, L.**, Robertson, J., Malmberg, R., and Cai, L. (2013) Protein closed loop prediction from contact probabilities", International Symposium on Bioinformatics Research and Applications (ISBRA 2013), 199-210.

4. **Ding, L.**, Fu, B., and Zhu, B. (2011) Minimum Interval Cover and Its Application to Genome Sequencing". International Conference on Combinatorial Optimization and Applications (COCOA 2011), 287- 298.

5. **Ding, L.**, Fu, B., and Fu, Y. (2010) Improved Sublinear Time Algorithm for Width- bounded Separators". International Workshop on Frontiers in Algorithmics, 101-112.

6. **Ding, L.**, Fu, B., Fu, Y., Lu, Z., and Zhao, Z. (2010) $O((logn)^2)$ Time Online Approximation Schemes for Bin Packing and Subset Sum Problem". International Workshop on Frontiers in Algorithmics, 250-261.

Book Chapters

1. Cai, L., **Ding, L.**, Huang, X., Malmberg, RL, and Xue, X. (2014) Stochastic grammar systems for biomolecular structure modeling, Integrative Bioinformatics for Biomedical Research: A No Boundary Thinking Approach", Huang and Moore ed. Cambridge Press, to appear.

2. **Ding, L.**, Fu, B. (2013) Algebrization and Randomization Methods". Handbook of Combinatorial Optimization, Springer, pp 171-220.

3. **Ding, L.**, Fu, B., Fu, Y., Wan, Y. (2012) Application of Width-Bounded Separators to Protein Side-Chain Packing Problem", Sequence and Genome Analysis: Methods and Applications, iConcep Press.

Preprints

1. **Ding, L.**, Chang, Di,, Malmberg, R., Martinez, A., Robinson, D., Wicker, M., Yan, H., Cai, L. (2018) Efficient Learning of Optimal Markov Network Topology with k-Tree Modeling. arXiv preprint arXiv:1801.06900.

2. **Ding. L.**, Samad, A., Xue, X., Huang, X., Cai, L. (2013) Polynomial kernels collapse the W-hierarchy. arXiv preprint arXiv:1308.3613.

HONORS AND AWARDS

- Ovation Silver Award, St. Jude Children's Research Hospital, 2017

- Dissertation Completion Award, Graduate School, University of Georgia, Athens, Georgia, 2015

- Outstanding Graduate Teaching Assistant Award, Graduate School, University of Georgia, Athens, Georgia, 2015

- CUDA and GPU Programming Certificate CUDA, Department of Computer Science, University of Georgia, 2013

- Outstanding Student Scholarship, Zhengzhou University, Henan, China, 2005