FACULTY VITA

Date: 15 May, 2019
Name: Julie A. Dickerson
Department: Electrical and Computer Engineering
Current Rank: Professor

I. BACKGROUND, PROFESSIONAL EXPERIENCE AND RECOGNITIONS

A. Education

Ph.D.	EE	University of Southern California	December 1993
MS	EE	University of Southern California	May 1986
BS	EE	University of California at San Diego	June 1983

B. Academic Appointments

2017	Northrop Grumman Professor, Department of Electrical and Computer Engineering Iowa State University, Ames, IA
2012	Professor, Department of Electrical and Computer Engineering Iowa State University, Ames, IA
2011-2013	NSF Program Officer, Advances in Biological Informatics (ABI)($25M/year), Postdoctoral Research Fellowships in Biology (PRFB)($3 M/year), and CyberSEES cross-cutting programs, Division of Biological Infrastructure (DBI), Directorate for Biological Sciences (BIO), National Science Foundation.
2011	Director, Bioinformatics and Computational Biology Interdisciplinary Program, Iowa State University, Ames, IA.
2008	Associate Director, Bioinformatics and Computational Biology Interdisciplinary Program, Iowa State University, Ames, IA.
2002	Associate Professor, Department of Electrical and Computer Engineering Iowa State University, Ames, IA
1995	Assistant Professor, Department of Electrical and Computer Engineering Iowa State University, Ames, IA
1994	Research Associate University of Southern California, Los Angeles, CA
1991-1994	Research Assistant University of Southern California, Los Angeles, CA

C. Other Professional Employment

1988-1991	Senior Staff Engineer Martin Marietta Space Systems, Long Beach, CA
1983-1988	Member of the Technical Staff Hughes Aircraft Corporation, Fullerton, CA

D. Honors and Awards

1984-86	Hughes Master's Degree Fellowship
1987-88	Hughes Engineer and Ph.D. Fellowship
1995-1999	Carver Foundation Fellow at the Iowa Center for Emerging Manufacturing Technology (now: the Virtual Reality Applications Center)
2001	Voted Outstanding Professor in Electrical and Computer Engineering (Engineering Student Council-National Engineer's Week)
2001	Warren Boast Outstanding Undergraduate Teaching award

2002	Voted Outstanding Professor in Electrical and Computer Engineering (Engineering Student Council-National Engineer's Week)
2003	Warren Boast Outstanding Undergraduate Teaching award
2010	Iowa Women of Innovation Award, Research Innovation and Leadership, Technology Association of Iowa.
2011	United States Department of Agriculture Secretary Honor Award for Excellence, for work on the BarleyCAP project data resource and informatics tools.
2014	International Peanut Genome Initiative, Award for developing the resource PeanutBase.org.
2017	Northrop Grumman Professorship

II. SCHOLARSHIP AND RESEARCH/CREATIVE ACTIVITIES

A. Scholarship

 # Denotes any publication derived from the candidate's thesis/dissertation.
+ Denotes student co-author.

1. Articles in Peer-Reviewed Journals – In Print or Accepted

1. R Liu+, JA Dickerson, "Strawberry: Fast and accurate genome-guided transcript reconstruction and quantification from RNA-Seq," PLoS Computational Biology, 13(11), e1005851.

2. D Mistry+, RP Wise, JA Dickerson, "DiffSLC: A graph centrality method to detect essential proteins of a protein-protein interaction network," PloS One, 12(11), e0187091.

3. JR Walsh+, ML Schaeffer, P Zhang, SY Rhee, JA Dickerson, TZ Sen, "The quality of metabolic pathway resources depends on initial enzymatic function assignments: a case for maize," BMC Systems Biology, 10(1), 1292016.

4. E Whigham, S Qi, D Mistry+, P Surana, R Xu, G Fuerst, C Pliego, LV Bindschedler, PD Spanu, JA Dickerson, D Nettleton, AJ Bogdanove, RP Wise, "Broadly conserved fungal effector BEC1019 suppresses host cell death and enhances pathogen virulence in powdery mildew of barley (Hordeum vulgare L.)," Molecular Plant-Microbe Interactions, Vol 28(9), 968-983; 2015. (Google scholar citation count: 16)

5. R Liu+, AE Loraine, JA Dickerson, "Comparisons of computational methods for alternative splicing detection using RNA-seq in plant systems," BMC Bioinformatics, 15:364, **DOI:** 10.1186/s12859-014-0364-4. (Google scholar citation count: 29)

6. JR Walsh+, TZ Sen, JA Dickerson, "A Computational Platform to Maintain and Migrate Manual Functional Annotations for Model Organism Databases," BMC Systems Biology, **8**:115, doi:10.1186/s12918-014-0115-1, 2014.

7. E. Marsh, J. Kelly, JA Dickerson, JH Oliver, "Fuzzy Navigation Engine: Mitigating the Cognitive Demands of Semi-Natural Locomotion", *Presence: Teleoperators and Virtual Environments,* MIT Press, 23(3):300-319 (Special Section: Robots, Virtual Reality and Brain Computer Interfaces in Telepresence), doi:10.1162/PRES_a_00195; 2014.

8. RP Wise, P Surana, G Fuerst, R Xu, D Mistry+, JA Dickerson, D Nettleton, "Flor Revisited (again) eQTL and Mutational Analysis of NB-LRR Mediated Immunity to Powdery Mildew in Barley," Journal of Integrative Agriculture, 13(2):237-243, 2014, http://dx.doi.org/10.1016/S2095-3119(13)60651-6.

9. Zhou WG+, Dickerson JA, "A novel class dependent feature selection method for cancer biomarker discovery," *Computers in Biology and Medicine*, **47**(1), 66-75, 2014, http://dx.doi.org/10.1016/j.compbiomed.2014.01.014. (Google scholar citation count: 15)

10. Royce, L, E Boggess+, Y. Fu+, P. Liu, JV Shanks, J.A. Dickerson, L Jarboe, "Transcriptomic analysis of carboxylic acid challenge in Escherichia coli: beyond membrane damage," PLoS ONE, 2014. (Google scholar citation count: 12)

11. P Liu, A Chernyshov, T Najdi, Y Fu+, J **Dickerson**, S. Sandmeyer, L Jarboe, "Membrane stress caused by octanoic acid in Saccharomyces cerevisiae," Applied Microbiology Biotechnology, 97:3239-3251, Springer, 2013, DOI: 10.1007/s00253-013-4773-5. (Google scholar citation count: 24)

12. Blake, V.C., Kling, J.G., Hayes, P.M., Jannink, J., Jillella, S.R.+, Lee, J., Matthews, D.E., Chao, S., Close, T.J., Muehlbauer, G.J., Smith, K.P., Wise, R.P., Dickerson, J.A. 2012. The hordeum toolbox - the barley CAP genotype and phenotype resource. The Plant Genome. DOI: 10.385/plantgenome2012.03.0002. (Google scholar citation count: 28)

13. Grimplet, J., Van Hemert, JL+, Carbonell-Bejerano, P, Diaz-Riquelme, J, Dickerson, JA, Fennell, A, Pezzotti, M., Martinez-Zapater JM, "Comparative analysis of grapevine whole-genome gene predictions, functional annotation, categorization and integration of the predicted gene sequences," BMC Research Notes, **5**:213, 2012; doi:10.1186/1756-0500-5-213. (Google scholar citation count: 75)

14. Xia, T+., JS. Tong, SS Rathore, X Gu, JA Dickerson, "Network motif comparison rationalizes Sec1/Munc18-SNARE regulation mechanism in exocytosis," BMC Systems Biology, 6:19, 2012, doi: 10.1186/1752-0509-6-19.

15. Van Hemert, J.L.+, J.A. Dickerson, "Discriminating response groups in metabolic and regulatory pathway networks", Bioinformatics, 2012, doi: 10.1093/bioinformatics/bts039.

16. P. Bais+, S.M. Moon-Quanbeck, B.J. Nikolau, J.A. Dickerson, "Plantmetabolomics.org: mass spectrometry-based Arabidopsis metabolomics," *Nucleic Acids Research,* 2012 Database Issue, doi: 10.1093/nar/gkr1006. (Google scholar citation count: 85)

17. Quanbeck SMM ,Brachova L ,Campbell AA ,Guan X ,Perera A ,He K ,Rhee SY. ,Bais P+ , Dickerson J ,Dixon P ,Wohlgemuth G ,Fiehn O ,Barkan L ,Lange BM ,Lee I ,Cortes D ,Salazar C ,Shuman J ,Shulaev V ,Huhman D ,Sumner LW. ,Roth MR. ,Welti R ,Ilarslan H ,Wurtele ES. ,Nikolau BJ. , "Metabolomics as a hypothesis-generating functional genomics tool for the annotation of Arabidopsis thaliana genes of "unknown function", *Frontiers in Plant Science* , **3**:00015, 2012, doi: 10.3389/fpls.2012.00015.   (Google scholar citation count: 48)

18. Dash, S.+, J. Van Hemert+, L. Hong, R.P. Wise, J.A. Dickerson, "PLEXdb: gene expression resources for plants and plant pathogens," *Nucleic Acids Research,* 2012 Database Issue, Early doi: 10.1093/nar/gkr938. (Citations: Google Scholar 189)

19. Fu, Y.+, L.R. Jarboe, J.A. Dickerson, "Reconstructing genome-wide regulatory network of *E. coli* using transcriptome data and predicted transcription factor activities," *BMC Bioinformatics,* **12**:233, 2011, doi:10.1186/1471-2105-12-233. (Google scholar citation count: 30)

20. Xia, T+, Van Hemert, J.L.+, Dickerson, J.A., "CytoModeler: A tool for bridging large-scale network analysis and dynamic quantitative modeling," *Bioinformatics*, doi: 10.1093/bioinformatics/btr150, March, 2011.

21. Xia, T.+, Van Hemert, J.L.+, Dickerson, J.A., "OmicsAnalyzer: a Cytoscape plug-in suite for modeling omics data," *Bioinformatics* **26** (23): 2995-2996, doi:10.1093/bioinformatics/btq583, 2010.(Google scholar citation count: 12)

22. Ming J.+, D. Reiners, E.S. Wurtele, J.A. Dickerson, "MetNetGE: Visualizing Biological Networks in Hierarchical Views and 3D Tiered Layouts," *BMC Bioinformatics* 2010, **11:**469 doi:10.1186/1471-2105-11-469, 2010. (Google scholar citation count: 8)

23. J. Van Hemert+, J.A. Dickerson, "PathwayAccess: CellDesigner Plugins for Pathway Datasources," *Bioinformatics*, 26 (18): 2345-2346. doi: 10.1093/bioinformatics/btq423, 2010. (Google scholar citation count: 13)

24. W.G. Zhou+, J.A. Dickerson, "StruLocPred : structure-based Protein Subcellular Localization Prediction Multi-class Support Vector Machine," *International Journal of Data Mining and Bioinformatics*, 6(2), 130-143, 2012. (Google scholar citation count: 4)

25. J. Van Hemert+, J.A. Dickerson, "Monte Carlo Randomization Tests for Large-Scale Abundance Datasets on the GPU," *Computer Methods and Programs in Biomedicine*, **101**(1) 80-86, June 9, 2010. (Google scholar citation count: 9)

26. Preeti Bais+, Stephanie M. Moon, Kun He, Ricardo Leitao, Kate Dreher, Tom Walk, Yves Sucaet, Lenore Barkan, Gert Wohlgemuth, Mary R. Roth, Eve Syrkin Wurtele, Philip Dixon, Oliver Fiehn, B. Markus Lange, Vladimir Shulaev, Lloyd W. Sumner, Ruth Welti, Basil J. Nikolau, Seung Rhee, and **Julie A. Dickerson**, "PlantMetabolomics.org: A Web Portal for Plant Metabolomics Experiments," *Plant Physiology*, pp. 109, **DOI:10.1104/pp.109.151027,** Feb. 10, 2010. (Google scholar citation count: 85).

27. Lekha Sreekantan, Kathy Mathiason, Jérôme Grimplet, Karen Schlauch, **Julie A. Dickerson** and Anne Y. Fennell, " Differential floral development and gene expression in grapevines during long and short photoperiods suggests a role for floral genes in dormancy transitioning," *Plant Molecular Biology*, E-pub date: 12 Feb, DOI 10.1007/s11103-010-9611-x, 2010. (Google scholar citation count: 43)

28. Grimplet, J., Cramer, G.R., **Dickerson, J.A.**, Mathiason, K., Van Hemert+, J. and Fennell, A.Y. (2009) VitisNet: "Omics" Integration through Grapevine Molecular Networks. *PLoS One*, **4**, e8365. (Google scholar citation count: 76)

29. Mao, L., Van Hemert+, J., Dash, S. and **Dickerson, J.** (2009) Arabidopsis gene co-expression network and its functional modules. *BMC Bioinformatics*, **10**, 346. (Google scholar citation count: 124)

30. El Kaissi, M., Jia*, M., Reiners, D., **Dickerson, J.** and Wurtele, E. (2009) Visualization of Gene Regulatory Networks *Lecture Notes in Computer Science*, **5876**, 909-918. (Google scholar citation count: 2)

31. El Kaissi, M., Jia+, M., **Dickerson, J.**, Wurtele, E. and Reiners, D. (2009) Reaction centric layout for metabolic networks. *Lecture Notes in Computer Science*, **5876**, 81-91.

32. Xia, T. +, **Dickerson, J.A.**, OmicsViz: Cytoscape plug-in for visualizing omics data across species," Bioinformatics, **24**, 21, 2557-2558, 2008. (Google scholar citation count: 11)

33. Fiehn O, Sumner LW, Rhee SY, Ward J, **Dickerson J**, Lange BM, Lane G, Roessner U, Last R, Nikolau B (2007) Minimum reporting standards for plant biology context information in metabolomics studies. Metabolomics 3: 195-201. (Google scholar citation count: 68)

34. Anson Call, Steven Herrnstadt, Eve Wurtele, Diane Bassham, **J.A. Dickerson**, "MetaBlast! Virtual Cell: A Pedagogical Convergence Between Game Design and Science Education,"

Journal of Systemics, Cybernetics, and Informatics, **5**(5), 27-31, December, 2007. (Google scholar citation count: 2)

35. Joset A. Etzel+, Erica L. Johnsen, **J.A. Dickerson**, Ralph Adolphs, "Cardiovascular and Respiratory Responses during Musical Mood Induction," International Journal of Psychophysiology, 2006. (Google scholar citation count: 161)

36. S.Y. Rhee, **J.A. Dickerson**, D. Xu, "Bioinformatics and Its Applications in Plant Biology," Annual Review of Plant Biology, **57**, 335-359, 2006. (Google scholar citation count: 84)

37. C.M. Helgason, T.H. Jobe, **J.A. Dickerson**, "Introduction to the Special Section on Fuzzy Logic in Biologic Systems and Medicine," Special issue of *IEEE Transactions on Systems, Man and Cybernetics, Part B,* **35**(6):1326-1327, 2005.

38. Pan Du+, Jian Gong+, Eve Syrkin Wurtele, and **J.A. Dickerson,** "Modeling Gene Expression Networks using Fuzzy Logic," Special issue of *IEEE Transactions on Systems, Man and Cybernetics, Part B,* **35**(6):1351-1359, 2005. (Google scholar citation count: 57)

39. Yuting Yang+, Levent Engin, Eve Syrkin Wurtele, Carolina Cruz-Neira, **J.A. Dickerson**, "Integration of metabolic networks and gene expression in virtual reality," *Bioinformatics*, **21**: 3645-3650. (Google scholar citation count: 49)

40. Ding, J., K. Viswanathan, D. Berleant, L. Hughes, E. S. Wurtele, D. Ashlock, **J. A. Dickerson**, A. Fulmer and P. S. Schnable (2005). "Using the biological taxonomy to access biological literature with PathBinderH." Bioinformatics **21**(10): 2560-2562. (Google scholar citation count: 23)

41. Lishuang Shen+, Jian Gong+, Rico A. Caldo, Dan Nettleton, Dianne Cook, Roger P. Wise, **J.A. Dickerson**, "Barleybase – An Expression Profiling Database For Plant Genomics," Nucleic Acids Research, **33**(suppl_1): D614-618, 2004. (Google scholar citation count: 105)

42. Tang, L. Shen+, **J.A. Dickerson**, "BarleyExpress: a web-based submission tool for enriched microarray database annotations," *Bioinformatics,* 21(3): 399-401, 2005 (pub early access September, 2004). (Google scholar citation count: 8)

43. Timothy J. Close, Steve Wanamaker, Rico A. Caldo, Stacy M. Turner, Daniel A. Ashlock, **Julie A. Dickerson**, Rod A. Wing, Gary J. Muehlbauer, Andris Kleinhofs, and Roger P. Wise, "A New Resource for Cereal Genomics: 22K Barley GeneChip Comes of Age," *Plant Physiology*, March 2004, Vol. 134, pp. 960-968. (Google scholar citation count: 322)

44. E. S. Wurtele, J. Li, L. Diao, H. Zhang, C. Foster, B. Fatland, **J. A. Dickerson**, A. Brown, Z. Cox+, D. Cook, E.-K. Lee, and H. Hofmann, "MetNet: software to build and model the biogenetic lattice of Arabidopsis," *Comparative and Functional Genomics*, vol. 4, pp.239-245, 2003. *(Google scholar citation count: 65)*

45. P. Sutherland, A. Rossini, T. Lumley, N. Lewin-Koh, **J.A. Dickerson**, Z. Cox+, D. Cook, "Orca: A Visualization Toolkit for High-Dimensional Data," *Journal of Computational and Graphical Statistics*, **9**, 509-529, 2000. (Google scholar citation count: 39)

46. J. Hong+, **J.A. Dickerson**, "Autonomous Star Identification Using Fuzzy Neural Logic Networks," *Journal of Guidance, Control, and Dynamics*. Volume 23, Number 4, 728-735, July-August, 2000. (Google scholar citation count: 49)

47. **J. A. Dickerson**, C.M. Helgason, "The Characterization of stroke subtype and science of evidence-based medicine using fuzzy logic," *Journal of Neurovascular Disease*, Volume 2, Number 4, 138-144,1997. (Google scholar citation count: 9)

48. **#J. A. Dickerson**, B. Kosko, "Fuzzy Function Approximation with Ellipsoidal Rules," *IEEE Transactions on Systems, Man, and Cybernetics*, Volume 26, Number 4, 542-560, August 1996. (Google scholar citation count: 257)

49. **# J. A. Dickerson**, H.M. Kim, B. Kosko, "Fuzzy Throttle and brake control for platoons of smart cars," *Fuzzy Sets and Systems,* Volume 84, Number 3, 209-234, 1996. (Google scholar citation count: 62)

50. **# J. A. Dickerson**, B. Kosko, "Virtual Worlds as Fuzzy Cognitive Maps," *Presence*, Volume 3, Number 2, 173-189, 1994. (Google scholar citation count: 451)

51. **# J. A. Dickerson**, B. Kosko, "Fuzzy Virtual Worlds," *AI Expert*, Volume 3, Number 2, 173-189, 1994. (Google scholar citation count: 82)

2. Articles in Peer-Reviewed Journals – In Review

Follow same format as II.A.1. above.

3. Peer-Reviewed Conference Proceedings, Bulletins, or Reports – In Print/Accepted

1. G. Kandoi, JA Dickerson, "Differential alternative splicing patterns with differential expression to computationally extract plant molecular pathways," IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2017), Kansas City, Missouri, 2163-2170.

2. JA Dickerson, TJ Heindel, C. Lawrence-Dill, PS Schnable, "Training Students with T-Shaped Interdisciplinary Studies in Predictive Plant Phenomics," American Society for Engineering Education Annual Conference and Exposition, Columbus OH, Board #78, June, 2017.

3. TJ Heindel, C. Lawrence-Dill, JA Dickerson, PS Schnable, "An Interdisciplinary Graduate Course for Engineers, Plant Scientists, and Data Scientists in the Area of Predictive Plant Phenomics," American Society for Engineering Education Annual Conference and Exposition, Session: Developing and Establishing Graduate Study Programs, Columbus OH, June, 2017.

4. S. Kher, **J.A. Dickerson**,N. Rawat "Biological Pathway Data Integration Trends, Techniques, Issues and Challenges: A Survey" World Congress on Nature and Biologically Inspired Computing (NaBIC), Kitakyushu, Japan, December 15-17, 2010.

5. M. Jia, **Dickerson, J.A.**, "Visualizing Multivariate Hierarchic Data using Enhanced Radial Space-Filling Layout," 6th International Symposium on Visual Computing (ISVC 10), Accepted, to appear.

6. Yao Fu, Laura R Jarboe, Julie Dickerson,(2010). Gene Regulatory Network Reconstruction based on Gene Expression and Transcription Factor Activities, In Proceedings of the International Conference on Bioinformatics & Computational Biology (BIOCOMP'10),July 12-15, Las Vegas, Nevada, USA, Volume I, 113-119, CSREA Press 2010, ISBN:1-60132-132-5. (Acceptance Rate: 27%)

7. M. Jia, Swaminathan, S., Wurtele, E.S., **Dickerson, J.A.**, "MetNetGE: Visualizing biological networks in hierarchical views and 3D tiered layouts," IEEE Conference on Bioinformatics and Biomedicine Workshop, 2009 (BIBMW 2009), 287-294, 2009. (Google Citation Count: 3)

8. J. Van Hemert, **J Dickerson**, "Monte Carlo Randomization Tests for Microarray Data on the GPU," Emerging Technologies Conference (ETC2009), Ames, IA, April, 2009.

9. Wen Zhou, Tian Xia*, Jiansong Tong, **Julie Dickerson**, Bo Su, Xun Gu, "Modeling protein interaction network and mechanisms in exocytosis," IEEE 7th International Symposium on Bioinformatics & BioEngineering, Cambridge, MA, November, 2007. (acceptance rate 12%)

10. Ming Jia*, Shaozhi Ye, Xing Li, and **Julie Dickerson**, "Web Site Recommendation Using HTTP Traffic," 2007 IEEE International Conference on Data Mining (ICDM07), Omaha, NE, October, 2007.

11. Y. Yang, E.S. Wurtele, C. Cruz-Neira, **J.A. Dickerson**, "Hierarchical visualization of metabolic networks using virtual reality" Proceedings of the 2006 ACM international conference on Virtual reality continuum and its applications, Hong Kong, China, pp 377-381, 2006. (Google Scholar Citations 4)

12. J-Q Xin*, L. Zhang, Y. Guan, **J.A. Dickerson**, "A Testbed for Evaluation and Analysis of Stepping Stone Attack Attribution Techniques," Accepted for 2nd International IEEE/Create-Net Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom 2006), Barcelona, Spain, March 1-3, 2006. (Google Scholar Citations 4)

13. **J.A. Dickerson**, P. Du*, E.S. Wurtele, J. Li, "Fuzzy Modeling of Metabolic Maps in MetNetDB," Annual Meeting of the North American Fuzzy Information Processing Society, Banff, Canada, June, 2004.

14. G. Faidley, B. Lwakabamba, KJ Lee, JE Hero, R. Walstrom, F. Chen, **JA Dickerson**, DT Rover, RJ Weber, and C. Cruz-Neira, "Interaction in a fully immersive virtual reality environment with the aid of a wearable computer," Eighth IEEE International Symposium on Wearable Computers, October 31-November 2, Arlington, VA, 2004.

15. D. Rover, **J. Dickerson**, C. Cruz-Neira, , R. Weber, K. Lee, G. Faidley, J. Hero, R. Walstrom, B. Lwakabamba, F. Chen, "CRCD: Low-Power Wireless Communications for Virtual Environments – Design Document," 2004 ASEE Annual Conference, Salt Lake City, June 2004. (3 citations)

16. Joset A. Etzel, Erica L. Johnsen, **Julie Dickerson**, Ralph Adolphs, "A Program to Accurately Identify Peaks in Respiration and EKG Signals for use in Psychophysiological Research," Annual Meeting of the Society of Pschophysiological Researchers, 2004 (3 citations)

17. (Invited) Roger P. Wise, Rico A. Caldo, Dan S. Nettleton, **Julie A. Dickerson**, "Probe-Level Analysis of Gene-For-Gene-Specified Responses In Barley-Powdery Mildew Interactions," Affymetrix Workshop (W264), Plant and Animal Genomes XII, San Diego, January, 2004.

18. X.Y. Tang, J. Gong, J.Q. Xin, L. Shen, S. Turner, R.A. Caldo, D. Nettleton, R.P. Wise, **J.A. Dickerson,** "Barleybase – An Expression Profiling Database For Cereal Genomics," Plant and Animal Genomes XII, San Diego, January, 2004. (Google Scholar Citations: 3)

19. D.T. Rover, **J.A. Dickerson**, C. Cruz-Neira, R.J. Weber, K.J. Lee, Z. Min, "Using a Design Document to Support Interdisciplinary Learning," 33rd ASEE/IEEE Frontiers in Education Conference, Boulder, CO, November, 2003.

20. (Invited) **J.A. Dickerson**, Y. Yang, K. Blom, A. Reinot, J. Lie, C. Cruz-Neira, and E. S. Wurtele, "Using Virtual Reality to Understand Complex Metabolic Networks," in *Atlantic Symposium on Computational Biology and Genome Informatics, 7th Joint Conference on Information Science (JCIS)*. Durham, North Carolina: JCIS/Association for Intelligent Machinery, Inc., pp 950-953, 2003. (Google Scholar Citations: 10)

21. M. Reid, B. Graubard, R. J. Weber, **J. A. Dickerson**, K. Smith, D. Raulerson, L. Brasche, G. Y. Baaklini, "Wireless Eddy Current Probe For Engine Health Monitoring," Review of Progress in Quantitative Nondestructive Evaluation (QNDE 2003), Session 30 BR A2, Green Bay, WI, July, 2003. (Google Scholar Citations: 2)

22. **J.A. Dickerson,** Z. Cox, "Using Fuzzy Measures to Group Cycles in Metabolic Networks," North American Fuzzy Information Processing Society (NAFIPS) Annual Meeting, Chicago, IL, July, 2003.

23. Xiaopeng Fang[*], Brian Kellog, Tye Conlan, **J.A. Dickerson,** "Fuzzy Multi-objective Fitness Functions for Dynamical System Optimization," North American Fuzzy Information Processing Society(NAFIPS) Annual Meeting, Chicago, IL, July, 2003.

24. (Invited) J. Q. Xin*, J. E. Dickerson, and **J. A. Dickerson**, "Fuzzy Feature Extraction and Visualization for Intrusion Detection," In the Proceedings of FUZZ-IEEE, St. Louis, MO, USA, 2003. (Google Scholar Citations: 22)

25. **J. A. Dickerson**, D. T. Rover, C. Cruz-Neira, R. J. Weber, E. Eekhoff*, B. Lwakabamba*, F. Chen, and Z. Min, "CRCD: Low-Power Wireless Communications for Virtual Environments-Course Integration," In the Proceedings of Annual Conference of the American Society for Engineering Education, Nashville, TN, 2003.

26. X. Fang*, B. Kellogg, T. Conlan, **J.A. Dickerson**, and D. Cook, "High Dimensional System Design Using Genetic Algorithms and Visualization," In the Proceedings of American Control Conference, 2003.

27. Wurtele E.S[.], **Dickerson J.A.**, Cox Z.*,Cook D., Ashlock D., Berleant D., Fatland B., Foster C.E **"**Computational analysis of genome-wide metabolome, proteome, and transcriptome expression data in Arabidopsis." First International Congress on Plant Metabolomics. Wageningen, The Netherlands, 7-11 April, 2002. (Only paper selected unanimously for oral presentation by conference committee).

28. (Invited) **J. A. Dickerson**, D. Rover, C. Cruz-Neira, R. Weber, "CRCD: Low-Power Wireless Communications for Virtual Environments," Invited Paper at the *American Society of Engineering Educators (ASEE)* Conference, Toronto, Canada, June, 2002. (Google Scholar Citations: 3)

29. B. Graubard, F. Chen, Z. Min, R.J. Weber, D. Rover, and **J.A. Dickerson**, "Lessons Learned: Installing a Wireless System in the C6 Virtual Reality Environment," IEEE Virtual Reality Conference, 7th Annual Immersive Projection Technology (IPT) Symposium, Orlando, March 2002. (Google Scholar Citations: 7)

30. (Invited) **J. A. Dickerson**, W. C. Black, C. Cruz-Neira, R. Weber, "CRCD: Wireless Multimedia Communications for Virtual Environments," Invited Paper at the *American Society of Engineering Educators (ASEE)* Conference, Albuquerque, New Mexico, June, 2001. (Google Scholar Citations: 2)

31. **J.A. Dickerson,** Z. Cox*, E. Wurtele, A.W. Fulmer, "Creating metabolic and regulatory network models using fuzzy cognitive maps," *IFSA World Congress and 20th North American Fuzzy Information Processing Society (NAFIPS) International Conference,* Vancouver, British Columbia, Volume 4, 2171-2176, July, 2001. (Google Scholar Citations: 27)

32. J.E. Dickerson, J. Juslin*, O. Koukousoula*, **J.A. Dickerson,** "Fuzzy intrusion detection," *IFSA World Congress and 20th North American Fuzzy Information Processing Society (NAFIPS) International Conference,* Vancouver, British Columbia, Volume 3, 1506-1510, July, 2001.(Google Scholar Citations: 194)

33. **J.A. Dickerson**, D. Berleant, Z. Cox*, W. Qi, and E. Wurtele, "Creating Metabolic Network Models using Text Mining and Expert Knowledge," *Atlantic Symposium on Molecular Biology and Genome Information Systems and Technology (CBGIST 2001)*, 26-30, Durham, North Carolina, March, 2001. (Google scholar citation count: 15)

34. Z. Cox*, **J.A. Dickerson**, D. Cook, "Visualizing Membership in Multiple Clusters After Fuzzy Clustering," *Proceedings of SPIE: Visual Data Exploration and Analysis VIII,* vol. 4302, 60-68, San Jose, 22-23 January, 2001. (Google scholar citation count: 8)

35. J.E. Dickerson, **J.A. Dickerson,** "Fuzzy Network Profiling for Intrusion Detection." *Proceedings of NAFIPS 19th International Conference of the North American Fuzzy Information Processing Society,* Atlanta, July, 301-306, 2000. (Google Scholar Citations: 283)

36. J.S. Eccles*, **J.A. Dickerson,** J. Shao*, "Evolving a Virtual Ecosystem With Genetic Algorithms," *Proceedings of the IEEE 2000 Conference on Evolutionary Computation, CEC-2000,* San Diego, Volume 1, 753-760, July, 2000. (Google scholar citation count: 5)

37. S. Koziol#, **J.A. Dickerson,** "Combined Signal Processing and Wireless Communications Laboratory at ISU." Texas Instruments DSPSFEST, Houston, TX, August, 1999.

38. S.Y. Lee*, **J.A. Dickerson**, "Least Lp-Norm Interference Suppression for DS/CDMA Systems in Non-Gaussian Impulsive Channels," *Proceedings of the IEEE International Conference on Communication (ICC 99)*, Volume 2, 907-911, S23_2.pdf, Vancouver, Canada, June, 1999. (40% acceptance rate)

39. **J.A. Dickerson**, J. Hong*, Z. Cox#, D. Bailey#, "A comparison of radial basis function networks and fuzzy neural logic networks for autonomous star recognition," *IJCNN '99, International Joint Conference on Neural Networks,* Volume 5, 3204-3207, 1999.

40. J.B. Choi*, **J.A. Dickerson**, "Adaptive Data Fusion using the Expected Output Membership Function," *Proceedings of the SPIE's 13th Annual International Symposium of Sensor Fusion: Architectures, Algorithms, and Applications III,* 26-33, Orlando, Florida, April 1999. (Google scholar citation count: 1)

41. C.M. Helgason, **J.A. Dickerson**, "Analysis of the Causal Complexity of Stroke by "Fuzzy" Statistics," *23rd International Joint Conference on Stroke and Cerebral Circulation*,

42. **J. A. Dickerson**, "Design Experiences in Digital Signal Processing Laboratories," *Frontiers in Education, (FIE 98)*, Phoenix, Volume 3, 1254, November, 1998.

43. **J. A. Dickerson**, R. Matalon, C.M. Helgason, "Fuzzy Clustering of Vitamin and Homocysteine Levels in Patients with History of Ischemic Stroke," Conference of the North American Fuzzy Information Processing Society - *NAFIPS 98,* 231-236, Pensacola, FL, August, 1998.

44. C.M. Helgason, R. Matalon, **J.A. Dickerson**, "Homocysteine and Vitamin Levels in Patients with History of Ischemic Stroke: Analysis using Fuzzy Clustering Techniques," *7th European Stroke Conference*, Edinburgh, 27-30 May, 1998.

45. J. Hong*, **J.A. Dickerson**, "Autonomous Star Identification Using Fuzzy Neural Logic Networks," *AAS/GFSC International Symposium on Space Flight Dynamics*, Goddard Flight Space Center, Maryland, May 11-15, 1998. (Google scholar citation count: 2)

46. J.B. Choi*, **J.A. Dickerson**, "Data Fusion Using the Expected Output Membership Function," *Proceedings of the IEEE World Congress on Computational Intelligence,* Anchorage, Alaska, Volume 2, pp 1447-1451, May, 1998.

47. J. Hong*, **J.A. Dickerson**, "Fuzzy Agents for Vehicle Behavior Modeling in Driving Simulations," *Smart Engineering Systems: Neural Networks, Fuzzy Logic, Data Mining, and*

Evolutionary Programming, (ANNIE '97), St. Louis, edited by C.H. Dagli, M. Akay, O. Ersoy, B. R. Fernandez, A. Smith, ASME Press: New York, 267-272,Vol. 7, November, 1997. (Google scholar citation count: 5)

48. S.Y. Lee*, **J.A. Dickerson**, "Adaptive Minimum Dispersion Interference Suppression for DS/CDMA Systems in Non-Gaussian Impulsive Channels," *Proceedings of MILCOM '97*, Volume 2, 857-861, November, 1997.

49. **J.A. Dickerson**, "Learning Optimal Fuzzy Rules Using Stable Simulated Annealing," *Conference of the North American Fuzzy Information Processing Society - NAFIPS '97*, 102-105, Syracuse, NY, September 1997. (Google scholar citation count: 5)

50. **J.A. Dickerson**, Y. Daaboul, T.H. Jobe, C.M. Helgason, "Analysis of Concomitant Mechanisms in Stroke Using Fuzzy Clustering," *Conference of the North American Fuzzy Information Processing Society - NAFIPS '97*, 211-216, Syracuse, NY, September 1997. (Google scholar citation count: 4)

51. **J.A. Dickerson**, "Alpha Stable Simulated Annealing," *IEEE Midwest Symposium of Circuits and Systems,* Ames, Iowa, Volume 2, 575-578, August 1996.

52. S.Y. Lee*, J. A. Dickerson, "Fuzzy Optimization-Based Power Control in Cellular Radio Systems," *Midwest Electrotechnology Conference,* Ames, Iowa, April 1996.

53. **J.A. Dickerson**, "Weighting Fuzzy Ellipsoidal Rules," *Midwest Electrotechnology Conference,* Ames, Iowa, March 1995.

54. **J.A. Dickerson**, "A Structure for Fuzzy Behavioral Animation," *World Congress on Neural Networks (WCNN 95)* Washington DC, July 1995.

55. **J.A. Dickerson**, H.M. Kim, B. Kosko, "Fuzzy Control for Platoons of Smart Cars," *Third IEEE World Congress on Computational Intelligence,* Orlando, FL*,* Volume 3, 1632-1637, July 1994. (Google scholar citation count: 5)

56. **J.A. Dickerson**, B. Kosko, "Adaptive Fuzzy Cognitive Maps in Virtual Worlds," *World Congress on Neural Networks (WCNN 94)* ,San Diego, June 1994. (Google scholar citation count: 20)

57. **J.A. Dickerson**, H.M. Kim, B. Kosko, "Hybrid Ellipsoidal Learning and Fuzzy Control for Platoons of Smart Cars," in *Proceedings of the Third International Conference on Industrial Fuzzy Control and Intelligent Systems (IFIS '93),* 60-65, December 1993. (Google scholar citation count: 2)

58. **J.A. Dickerson**, B. Kosko, "Neural Fuzzy Ellipsoidal Learning and Platoon Control," *Proceedings of the Workshop on the Future Directions of Fuzzy Theory and Systems,* Chinese University of Hong Kong, October , 1993.

59. **J.A. Dickerson**, B. Kosko, "Hybrid Fuzzy Ellipsoidal Learning," *International Joint Conference on Neural Networks (IJCNN'93),* Nagoya, Japan, Volume 3, 2853-2856, October 25-29, 1993. (Google scholar citation count: 4)

60. **J.A. Dickerson**, B. Kosko "Ellipsoidal Fuzzy Learning for Smart Car Platoons," *SPIE International Symposium on Optical Tools for Manufacturing Technology* Boston, September, 1993. *(Google scholar citation count: 7)*

61. **J.A. Dickerson**, B. Kosko, "Virtual Worlds as Fuzzy Cognitive Maps," *Proceedings of the First Annual Virtual Reality Annual International Symposium (IEEE VRAIS-93),* 471-477, Seattle, September 1993. (Google scholar citation count: 151)

62. **J.A. Dickerson**, B. Kosko., "Fuzzy Function Approximation with Supervised Ellipsoidal Learning," *World Congress on Neural Networks (WCNN '93),* Volume II, 9-17, Portland, July 1993. (Google scholar citation count: 32)

63. **J.A. Dickerson**, B. Kosko, "Fuzzy Function Learning with Covariance Ellipsoids," *IEEE International Conference on Neural Networks (IEEE ICNN-93),* San Francisco, Volume 3, 1162-1167, March, 1993. (Google scholar citation count: 32)

64. **J.A. Dickerson**, B. Kosko, "Fuzzy Longitudinal Control for Car Platoons," *Modern Tools for Manufacturing Systems - Proceedings of the IEEE International Workshop on Emerging Technologies for Factory Automation,* 1992. (Google scholar citation count: 7)

4. Books and Book Chapters

1. Royce, L, E. Boggess[+], T. Jin, J. Dickerson, L. Jarboe, "Identification of Mutations in Evolved Biological Genomes," in *Systems Metabolic Engineering*, editor Hal S. Alper, 2013.

2. Grimplet J., Dickerson JA, Adam-Blondon AF, Cramer, G., 2010, "Bioinformatics Tools in Grapevine Genomics," in *Genetics, Genomics and Breeding of Grapes*, pp 317-331.

3. Wurtele ES, Li L, Berleant D, Cook D, **Dickerson JA**, Ding J, Hofmann H, Lawrence M, Lee EK, Li J[+], Mentzen W, Miller L, Nikolau BJ, Ransom N, Wang Y, 2007. MetNet: Systems Biology Software for Arabidopsis. In: Concepts in Plant Metabolomics. Springer. pp 145-158. (Google Scholar Citations: 39; WoS: 11)

4. + Wise, RP, RA Caldo, L Hong, L Shen[+], **JA Dickerson**. 2006. BarleyBase/PLEXdb: A Unified Expression Profiling Database for Plants and Plant Pathogens. *In* "Methods in Molecular Biology: Plant Bioinformatics Methods and Protocols". Dave Edwards, ed. Humana Press, Vol 406. (Google Scholar Citations: 41)

5. **Dickerson, J. A.**, D. Berleant, P. Du[+], J. Ding, C. M. Foster, L. Li and E. S. Wurtele (2005). Creating, Modeling, and Visualizing Metabolic Networks. <u>Medical Informatics: Advances in knowledge management and data mining in biomedicine</u>. H. Chen, S. S. Fuller, C. Friedman and W. Hersh. New York, Springer**:** 449-490. (Google Scholar Citations:12)

6. **J.A. Dickerson**, "FCModeler: Dynamic Graph Display and Fuzzy Modeling of Metabolic Maps," in <u>Genome Exploitation: Data Mining the Genome</u>, Stadler Symposium, Vol 23, edited by J. Perry Gustafson, R. Shoemaker, J.W. Snape, Springer Science:New York, 77-88, 2005.

7. **J.A. Dickerson**, D. Berleant, Z. Cox*, W. Qi, D. Ashlock, E.S. Wurtele, and A.W. Fulmer, "Creating and Modeling Metabolic and Regulatory Networks Using Text Mining and Fuzzy Expert Systems," in *Computational Biology and Genome Informatics*, edited by Jason T. L. Wang, Cathy H. Wu, Paul Wang, World Scientific Publishing:Singapore, pp.207-238, 2003. (Google Scholar Citations: 28+8)

8. # **J.A. Dickerson**, B. Kosko, "Virtual Worlds as Fuzzy Dynamical Systems," in *Technology for Multimedia*, B. Sheu and M. Ismail (editors), IEEE Press:New York, pp 567-603,1998. (Google Scholar Citations: 36)

9. #**J. A. Dickerson**, B. Kosko, "Virtual Worlds in Fuzzy Feedback Systems," in *Fuzzy Set Methods in Information Engineering: A Guided Tour of Applications*, D. Dubois, H. Prade, R.R. Yager, (editors), pp. 201-217, John Wiley & Sons:New York, 1997.

10. #**J. A. Dickerson**, B. Kosko, "Function Approximation with additive fuzzy systems," in *Theoretical Aspects of Fuzzy Control*, H. Nguyen, M. Sugeno, R. Tong, R. Yager (editors), J. Wiley & Sons, 1995. (Google Scholar Citations: 18)

11. **#J. A. Dickerson**, B. Kosko, "Fuzzy Throttle Control for Platoons of Smart Cars," in *Fuzzy Engineering,* Bart Kosko (editor), pp. 175-212, Prentice Hall:Englewood Cliffs, New Jersey, 1997.

12. **#J. A. Dickerson**, B. Kosko, "Virtual Worlds in Fuzzy Cognitive Maps," in *Fuzzy Engineering,* Bart Kosko (editor), pp. 499-529, Prentice Hall:Englewood Cliffs, New Jersey, 1997.

13. **# J. A. Dickerson**, B. Kosko, "Ellipsoidal Fuzzy Systems," in *Fuzzy Engineering,* Bart Kosko (editor), pp. 139-174, Prentice Hall:Englewood Cliffs, New Jersey, 1997.

14. **#J.A. Dickerson**, B. Kosko, "Ellipsoidal Learning and Fuzzy Throttle Control for Platoons of Smart Cars," in *Fuzzy Sets, Neural Networks, and Soft Computing,* R. R. Yager, L. A. Zadeh, (editors), 63-84, Von Nostrand Reinhold, 1994.

5. Formally Invited Seminars and Presentations

1. "Research in Predictive Plant Phenomics at Iowa State University", Plant Imaging Consortium Annual Meeting, St. Louis, MO, June, 2017.

2. "Postdoctoral Research Fellowships in Biology at the Intersection," Plant and Animal Genome Conference, San Diego, CA, 2013.

3. "Informatics funding opportunities in the BIO Directorate," International Society of Computational Biology Conference, Long Beach, CA, 2012.

4. "Integrating multi-omics data into metabolic models," University of North Carolina, Charlotte, June, 2011.

5. "Integrating multi-omics data into metabolic models," National Science Foundation, Division of Biological Informatics, April, 2011.

6. "Grape Metabolic Pathways", Invited Talk, Grape Research Coordination Meeting, Geneva, NY, July, 2010.

7. "Applying Systems Biology Databases to Metabolic Engineering," United States/European Union Workshop on Synthetic Biology, Segovia, Spain, June, 2010.

8. "Grape Informatics Resources", Invited Talk, Grape Research Coordination Meeting, Lake Tahoe, CA, May, 2009.

9. Association mapping in THT, Invited talk, Barley CAP annual meeting, San Diego 2009.

10. Linking Phenotype to Genotype in THT, Invited talk, Barley CAP annual meeting, San Diego 2008.

11. Plant and Animal Genome Conference, Invited talk in Microarray Session, San Diego, 2007.

12. Data Warehouse Technologies in Bioinformatics, Wittenburg, Germany, Keynote Talk, December, 2006.

13. International Rice Functional Genomics, IRFG, "Comparative Microarray Analysis, Montpellier, France, October 9-11, 2006.

14. NSF sponsored Plant Microarray Analysis Short Course, "Resources for putting microarray data into context," Boston, MA, August 2-4, 2006.

15. "The Hordeum Toolbox," 2006 Barley CAP Workshop, San Diego, CA, January, 2006.

16. "Visualization of Large-scale 'Omics Data," University of Iowa-Iowa State Joint Bioinformatics Symposium, July, 2005.

17. "PLEXdb: On-line analysis of Soybean GeneChips," Soybean Genomics Workshop, Plant and Animal Genome Conference, San Diego, CA, January 16, 2005.

18. "BarleyBase to PLEXdb," 2004 Barley CAP Workshop, University of Minnesota, November, 2004.

19. "FCModeler: Dynamic Graph Display and Fuzzy Modeling of Metabolic Maps," Gordon Research Conference on Macromolecular Organization and Cell Function, Queen's College, Oxford, August 17, 2004.

20. "BarleyBase: a Repository for Cereal Genomics Data," 2004 International Triticeae Mapping Initiative Summer Workshop, University of Minnesota, May 24, 2004.

21. "FCModeler: Dynamic Graph Display and Fuzzy Modeling of Metabolic Maps," BASF Spring Bioinformatics Meeting, Ames, IA, April 20, 2004.

22. "Fuzzy Modeling of Metabolic Networks," XXIII Stadler Genetics Symposium, Columbia, Missouri, March 31-April 2, 2003.

23. "Creating Metabolic and Regulatory Network Models using Fuzzy Cognitive Maps," University of Illinois at Chicago, Department of Neurology, Grand Rounds Presentation, November, 2001.

24. "Integrated circuit testing at a distance: The Roy J. Carver High Speed Communications Circuits Laboratory," Invited Presentation at the NSF Distance Learning Showcase at the *American Society of Engineering Educators (ASEE)* Conference, Albuquerque, New Mexico, June, 2001.

25. "CRCD: Wireless Multimedia Communications for Virtual Environments," Invited Presentation at the NSF Distance Learning Showcase at the *American Society of Engineering Educators (ASEE)* Conference, Albuquerque, New Mexico, June, 2001.

26. "Applications of Fuzzy Logic to Biological Systems," Bioinformatics and Computational Biology Seminar, Iowa State University, Ames, Iowa, November, 2000.

27. "Fuzzy Logic in Medicine," University of Illinois at Chicago, Grand Rounds Presentation, April, 2000.

28. "Fuzzy Intrusion Recognition Engine," Cal Poly San Luis Obispo, February, 2000.

29. "Fuzzy Logic, Neural Networks and Neurological Expert Opinion." Chicago Neurological Society, March 1997.

30. *Neural Networks for Physicists*, University of Minnesota, September 1995.

Society of Actuaries Conference, Special Session on Fuzzy Systems, Orlando, FL, April 1994.

6. Contributed Presentations
I have not kept data on this.

7. Other Scholarly Contributions
Abstracts or extended abstracts
1. P. Bais, S Moon, K He, R Leitao, Kate Dreher, T Walk, Y Sucaet, L Barkan, Gert Wohlgemuth, M Roth, Eve Wurtele, Philip Dixon, Oliver Fiehn, Bernd Lange, Vladimir Shulaev, Lloyd Sumner, Ruth Welti, SY Rhee, B Nikolau, J Dickerson. "Database for Mass Spectrometry-Based Plant Metabolomics," IN VITRO CELLULAR & DEVELOPMENTAL BIOLOGY-ANIMAL, 46: S7-S7 Suppl. S SPR 2010

2. Yao Fu, **J.A. Dickerson**. "Gene Regulatory Network Reconstruction based on Gene Expression and Transcription Factor Activities". ISMB2010, Boston, MA, July 11-13. Poster: S05.

3. ML Schaeffer, EKL Cannon, S Dash, J Van Hemert, JM. Gardiner, BM. Braun, D A Campbell, CM Andorf, SM Birkett, LC Harper, TZ Sen, R Wise, **J Dickerson**, C Lawrence, "B73 Maize Gene Expression Atlas – a Plant Ontology Use Case," Plant and Animal Genome Conference, San Diego, CA, 2012.

4. J. Van Hemert, **J.A. Dickerson**, "VITICYC: A PATHWAY GENOME DATABASE FOR THE GRAPEVINE *and pathway data integration between MetNet and BioCyc databases using new CellDesigner plugins," Grape Research Coordination Network Conference, Lake Tahoe, CA, May 2009.*

5. P. Bais, **J.A. Dickerson**, "Application of plant metabolomics for the classification of genotypes, temperature stress, and biomarker identification using machine learning," Women in Machine Learning (WIML) 2008, Vancouver, Canada, 2008.

6. Basil Nikolau, **Julie Dickerson**, Philip Dixon, Oliver Fiehn, Bernd Markus Lange, Seung Yon Rhee, Vladimir Shulaev, Lloyd Sumner, Ruth Welti, Eve Syrkin Wurtele, "Using metabolomics to decipher functions of Arabidopsis genes in the context of metabolic and regulatory networks," 18TH INTERNATIONAL CONFERENCE ON ARABIDOPSIS RESEARCH, Madison WI, 2007.

7. Ethalinda Cannon, Nick Lauter, Yogesh Nadkarni, Matt Moscou, **Julie Dickerson**, Roger Wise, "Maize Microarray Platform Translator, a new tool at PLEXdb (http://plexdb.org) to enhance capabilities for meta-analysis of gene expression profiling," Annual Maize Meeting, 2007.

8. Ethalinda Cannon, Matt Moscou, Hong Lu, Jianqiang Xin, Rico A. Caldo, Sudhansu Dash, Dan Nettleton, Volker Brendel, Roger Wise, **Julie A Dickerson**, "PLEXdb - Plant Expression Database," Plant and Animal Genome Conference, San Diego, 2007.

9. 'Ling Li, **Julie A Dickerson**, Eve S. Wurtele, "MetNet Platform for Systems Biology," Plant Biology 2006, Boston, MA, August,2006.

10. Alicia Guidry# , Machele Lugo#, **J. Dickerson**, "Improving Interaction with Simulations in the C6 Environment," Joint Bioinformatics Workshop University of Iowa, Iowa State, July, 2005.

11. Li, Ling, Foster, Carol M,Ilarslan, Hilal I, McCarty, Shane N, Yakobson, Alex, Du, Pan, **Dickerson, Julie A**, James, Martha G, Myers, Alan, Wurtele, Eve S "The starch metabolic network," Plant Biology 2005, Meeting of the American Society of Plant Biologists, Seattle, WA, July, 2005.

12. George Y. Baaklini, Kevin Smith, Lisa Brasche, Robert J. Weber, **Julie A. Dickerson**, and Dave Raulerson, "Wireless Eddy Current and Thermal Acoustics for Engine Health Monitoring," 4th International Workshop on Structural Health Monitoring (SHM), Stanford University, Sept, 2003.

Software Contributions (Community Reviewed)

1. Etzel, J. A., Johnsen, E. L., **Dickerson, J. A.** Adolphs, R., 2004. A Program to Accurately Identify Peaks in Respiration and EKG Signals for use in Psychophysiological Research. Psychophysiology. 41, S73.

2. Rao, VV, Lee, Daisy, Dickerson, JA, Subgraph Creator, Cytoscape plugin for adaptively selecting contextual information in metabolic networks. 2007.

3. T. Xia, JA Dickerson, Omics Viz Cytoscape plugin for mapping orthologs and expression data across species.

4. PLEXdb.org: web database was listed in the List of Websites that Lead Principal Investigators of NPGI Grants Reported as the Top Five Websites Used for NPGI Research in a National Academy Report on

"Achievements of the National Plant Genome Initiative and New Horizons in Plant Biology," 2007. Website has over 1600 registered users.

5. Plant Metabolomics website, plantmetabolomics.org.

6. THT website, The Hordeum Toolbox for the Barley Coordinated Agricultural Program (CAP), www.hordeumtoolbox.org.

7. MetNetGE: software for visualizing metabolic network trends using the Google Earth interface. www.metnetge.org.

8. Walsh, JR, Sen T, Dickerson, JA, CycTools: A computational platform to maintain and migrate manual functional annotations for BioCyc databases.

B. Patents, Disclosures, and Technology Transfer
   Not Applicable.

C. Funded Grants and Contracts
1. **JA Dickerson**, C. Dill, T. Heindel, P. Schnable, "NRT-DESE: P3 - Predictive Phenomics of Plants," NSF, $2,866,938, .

2. **J.A. Dickerson,** The Peanut Foundation, "PeanutBase.org, a Peanut Genetic and Genomic Toolbox-phase III" $168,000, 3/1/2015-2/28/2016.

3. **J.A. Dickerson,** The Peanut Foundation, "PeanutBase.org, a Peanut Genetic and Genomic Toolbox-phase II" $130,000, 3/1/2014-2/28/2015.

4. **J.A. Dickerson,** National Science Foundation, DBI-1159749, "NSF IPA Assignment" $360,020, 9/19/2011-9/19/2013.

5. **J.A. Dickerson,** National Science Foundation, DBI-1062546, "ABI Innovation: Model-based Alternative Splicing Analysis Across Expression Platforms," $424,483, 6/1/2011to 5/31/2017. Sole PI.

6. Wise, R.P (PI), Nettleton, D., **Dickerson, J.A.**, Bogdanove, A., Lesham-Ackerman, A., National Science Foundation, IOS-0922746,"GEPR: The functional interactome of cereals with fungal biotroph, blumeria graminis," 3/15/2010-2/28/2014, $2,762,416. My part is approximately $300K for developing bioinformatics tools and analyses for plant-pathogen networks. Additional PLEXdb bridge funding for one year at $115K.

7. Brent Shanks (PI), and many others, ERC: Center for Biorenewable Chemicals, National Science Foundation, EEC-0813570,11/1/08 My part is $120K/year ($600K for the five year period) for developing mathematical modeling and visualization tools for metabolic networks. Center grant renewed for additional 3 years, May, 2011.

8. E.S. Wurtele (PI), **J.A. Dickerson**, D. Bassham, "Meta!Blast: an educational cell environment," NIH-SEPA, 9/2008-9/2010, $512,000. My part is $130K for being the technical lead for the game development and supervising the student who is writing the game engine.

9. B. Nikolau, E.Wurtele, **J. A. Dickerson**, P. Dixon, and 5 other universities, **National Science Foundation**, "Metabolomics: A functional Genomics Tool for Deciphering Functions of Arabidopsis Genes in the Context of Metabolic and Regulatory Networks," 3/1/2009-3/1/11. My part is $65K/year for being the technical lead and supervising a graduate student for the development of Plantmetabolomics.org and metabolomics analysis tools.

10. **J.A. Dickerson**, R.P. Wise, United State Department of Agriculture, CSREES, subcontract from the University of Minnesota, "Barley Coordinated Agriculture Project (BarleyCAP)," 3/31/06-12/31/2010, $326,682. My part is the entire subcontract as I am the lead for developing the Hordeum Toolbox.

11. R. Jernigan, V. Hanovar, **J.A. Dickerson**, V. Brendel, K. Dorman, National Science Foundation, EEC 0608769, "BBSI Bioinformatics and Computational Systems Biology Summer Institute at Iowa State University," $450,000, 8/15/2006-7/31/2009. My role is teaching two days of short course material on functional genomics (.5 summer months) and mentoring 1-2 students/summer session. My part is around $60K.

12. **J.A. Dickerson** (sub-contractor to South Dakota State, PI A. Fennell), National Science Foundation, DBI 0604755 "Functional Genomics of Bud Endodormancy Induction in Grapevines (Vitis)," $875,969, 9/01/2006-8/31/2011. Sole PI on subcontract.

13. **J.A. Dickerson**, E.S. Wurtele, D. Reiners, National Science Foundation, IIS 0612240, "Interactive Visualization and Analysis of Large-Scale Graphs for Biological Network Modeling," $808,353, 08/01/2006-7/31/2009. My part is approximately 50% of the funding ($400K) as the lead PI and supervisor of two of the four students.

14. **J.A. Dickerson,** R.P. Wise, National Science Foundation, DBI 0543441, "PLEXdb: Plant Expression Database," $1,097,332, 09/01/2006-8/31/2009. My part is approximately 75% of the funding as the lead PI who hired personnel and purchased equipment. Dr. Wise plays mainly an advisory and evangelical role; he is also a USDA employee who does not draw salary from grants.

15. B. Nikolau, E.Wurtele, **J. Dickerson**, P. Dixon, G. Kraus, N. Pohl, **National Science Foundation**, MCB 0520140, "Metabolomics: A functional Genomics Tool for Deciphering Functions of Arabidopsis Genes in the Context of Metabolic and Regulatory Networks," $1,000,000, 9/1/05-8/31/08. My part was $110K for being the technical lead for the development of Plantmetabolomics.org and metabolomics analysis tools.

16. Y. Guan, T. Daniels, **J.A. Dickerson**, **Department of the Interior**, "Stepping Stone Detection-Phase II,**"** $350,000, 8/1/05-5/31/07. My role was to mentor graduate and undergraduate students in this program, and apply fuzzy systems for information assurance problems for intrusion detection and attack attribution. My part was around $80K.

17. E.S. Wurtele, **J.A. Dickerson,** D. Cook, D. Berleant, L. Miller, **National Science Foundation**, DBI-0520267 "MetNet: Integrated Software for Arabidopsis Systems Biology Research," $969,634, 7/1/05-6/30/07. My role was to work on bioinformatics and linkages to metabolic pathways as well as develop methods to display and analyze microarray data. My part of the grant was around $200k.

18. R.P. Wise, S. Whitham, **J.A. Dickerson**, Dan Nettleton, **National Science Foundation,** DBI 0500461 "ISGA: Functional Genomics of Plant Disease Defense Pathways", $2,093,192, 6/1/2005-5/31/2009. My role was to work on bioinformatics and linkages to barley metabolic pathways as well as develop methods to display the data. My part of the grant was around $200K.

19. D. Rover, M. Shelley, D. Flugrad, M. Mina, **J.A. Dickerson**, National Science Foundation, EEC-0431924, "VIE: Vertical Integration of Computer, Electrical, and Mechanical Engineering Education (Planning Grant)," $99,986, 8/1/2004-7/31/2006. My role was to help plan how curricula in wireless communications and signal processing could be integrated, my part was $20K.

20. T. Daniels, **J.A. Dickerson**, Y. Guan, **Department of the Interior**, "Advanced Attack Attribution-Phase I," **$350,000**, 10/1/03-3/31/05. My role was to mentor graduate and undergraduate students in this program, and apply fuzzy systems for information assurance problems for intrusion detection and attack attribution. My part was around $100K.

21. L. Brasche, R. Weber, **J.A. Dickerson**(co-PI)**,** , **NASA (subcontract from Pratt and Whitney)**, "Support for the Development and Integration of Inspection Technology for Damage Detection in On-wing Engine Configurations: Wireless probe development Phase II," **$442,324**, 7/1/03-4/30/05. My role was to develop the signal processing algorithms for encoding and detecting the probe signal. My part of the funding was $200K.

22. **J.A. Dickerson**, C. Cruz-Neira, E.S. Wurtele, **NSF-Information Technology Research**, IOS 0219366, "Three-dimensional graph visualization with applications to metabolic networks," **$325,132**, 9/1/02-8/31/05. My role in this grant is as PI and developing graph layout methods that are data-driven. My part of the funding worked out to be around $200K. (Note: Dr. Cruz-Neira left ISU after the first year and I took over her role as well)

23. E. Wurtele, **J.A. Dickerson,** D. Cook, **National Science Foundation**, DBI-0209809 "Visual informatics tools to interactively link Arabidopsis metabolic and regulatory network maps with genome-wide expression data," **$300,000**, 8/1/02-7/31/05. My part was to develop informatics tools for visualizing metabolic pathways using FCModeler and Cytoscape. The dollar amount was around $100K.

24. **J.A. Dickerson**, V. Brendel, R. P. Wise, D. Nettleton, **USDA-NRI Bioinformatics,** 2002-35300-12619, "BarleyBase, A Prototype Online Database for Cereal Microarrays with Integrated Tools for Data Visualization and Statistical Analysis" **$502,039**, 10/1/02 – 9/30/05.

25. D. Ashlock, **J.A. Dickerson**, R. Wise, **USDA**, "An Exportable Database for the Integration of Gene Expression, Physical, and Genetic Mapping," **$50,000**, May 2002-May 2003.

26. R. Cox, A. Bice, A. Mann, **J.A. Dickerson**, **Genisus Systems**, "*Feasibility Study and Testing of VibraComm Device,*" **$34,211**, October 2001- March, 2002. My role is to assess the feasibility of using speech signal measured by an accelerometer for a possible speech recognition application.

27. J. Davis, D. Jacobson, C. Bergman, C. Miller, J. Wong, **J.A. Dickerson**, and J.Davidson, **National Science Foundation**, "Graduate Fellowships for Information Assurance," **$2,600,000**, 6/1/01-6/1/05, This interdisciplinary grant includes 7 faculty members from the departments of Engineering, Computer Science, and Mathematics. My role is to mentor graduate and undergraduate students in this program, teach a course in pattern recognition and fuzzy systems for information assurance problems, and involve students in my information assurance research projects as their major professor.

28. D. Cook, **J.A. Dickerson, John Deere Corporation**, "Visualization of High Dimensional Control Surfaces and Data," $157,624, January 2002-December 2005.

29. S. Carpenter, et al., **USDA**, "Initiative for Future Agriculture and Food Systems (IFAFS) Multidisciplinary Graduate Education Traineeship (MGET) grant in Computational Biology for Animal Agriculture," **$1,756,000**, September 2001-August 2005. This interdisciplinary grant includes 30 faculty members from the colleges of Agriculture, LAS, Engineering, and Vet Med. My role is to participate in planning courses and the curriculum for this interdisciplinary project, bring first-year students into my lab to work on problems in computational biology, mentor and recruit students to the program, and give seminars on my computational biology research. After the first year, the students select a major professor team of two faculty: one in animal science, one in computational biology. The grant supplies support for the first two years of the student's program.

30. **J.A. Dickerson**(PI)**,** D. Rover, C. Cruz-Neira, R. Weber, **NSF Combined Research and Curriculum Development Program**, "Wireless multimedia communications systems for Virtual Environments (CNS 0088071)," **$499,891**, January 2001-January 2004. My role was as project PI and supervise the graduate students in software development and wireless communications. My

part of the funding was $250K. (Note: Dr. Cruz-Neira left ISU after the first year and I took over her role as well)

31. **J.A. Dickerson** (co-PI)**,** R. Weber, **NASA (subcontract from Pratt and Whitney)**, "Development and Integration of Inspection Technology for Damage Detection in On-wing Engine Configurations: Wireless probe development," **$220,000**, May 2001-May 2003.

32. **J.A. Dickerson**(PI), **NSF** POWRE Program, EIA 0074919, "Adaptive Fuzzy Intrusion Detection with Cooperative Agents," **$75,000**, August 2000-December 2001.

33. **J.A. Dickerson**(PI)**,** D. Cook, C. Cruz-Neira, **John Deere Corporation**, "Visualization of High Dimensional Control Spaces," **$128,000**, August 2000-August 2001.

34. **J.A. Dickerson** (co-PI), D. Ashlock, D. Berleant, E. Wurtele, **Proctor and Gamble**, "Bioinformatic Tools for Extraction and Modeling of Signal Transduction Networks," **$221,551**, July 2000 - July 2002.

35. **J.A. Dickerson**(PI)**, Rockwell Foundation**, "DSP and Wireless Communications Laboratory Development," **$106,000**, Sept 98-Aug 03.

36. **J. A. Dickerson** (PI), **Visionaire/CAT-D**, **$3200**, "Voice Controlled Cockpit Activation," Dec 97-May 98.

37. S.F. Russell (PI), **J.A. Dickerson, Rockwell Foundation**, "Wireless System Security," **$80,000**, Sept 97-Aug 99.

38. **J.A. Dickerson**(PI), **Rockwell International**, "Human Centered Interfaces for GATM," **$25,000**,15 May 97-15 August 97.

39. **J.A. Dickerson**(PI), **NASA Goddard Flight Space Center**, "Application of Expert System Technology to Spacecraft Flight Dynamics," **$58,494**,15 February 97-31 August 98.

40. **J.A. Dickerson** (PI) and C. Cruz-Neira, **Rockwell**, "Virtual Cockpit," **$95,000**, 1 January 97-1 October 97.

41. **J.A. Dickerson**(PI), **Rockwell**, "Modular Digital Radio," **$33,000**, 15 May 96-31 December 96.

42. D.G. Chen (PI), M. Khammash (Co-PI), V. Vittal (Co-PI), **J.A. Dickerson** (Co-PI), Alexandre Megretski (Co-PI), **NSF Instrumentation and Laboratory Improvement Program**, "Undergraduate Laboratory in Systems and Control," **$100,000,** March 1995-March 1997.

Internal Funding

1. A. Bolstad, **J.A. Dickerson**, "Creating Open Educational Resources for Signals and Systems," Miller Faculty Fellowship, May 2019.

2. S. Aluru, **J.A. Dickerson**, J. Shanks, P. Schnable, L. Dong, S. Pandey, "Initiative on High-Throughput Computational Biology," Dean's Research Initiative, $500,000, May 2011-May2014.

3. D. Bassham (Genetics, Development and Cell Biology), **J.A. Dickerson**, N. Fang, J. Vela-Becerra (Chemistry), B. Jernigan (Biochemistry, Biophysics and Mol. Biology), Plant Sciences Institute Development Grant, "Imaging of growing plants and computational modeling of plant growth and development," $40,012, November 2010-September 2011.

4. H. Greenlee, J. Serb, **J.A. Dickerson**, Center for Integrated Animal Genomics (CIAG), "Using Network Visualization And Comparative Genomics To Explore Gene Networks Controlling Photoreceptor Development," $25,000, June 2008-June 2009.

5. J. Shanks, **J.A. Dickerson**, Plant Sciences Institute Grant, "Understanding oil/protein partitioning in developing soybean embryos: Linking transcript data and metabolic fluxes," $50,000, July 2006-June 2008.

6. **J.A. Dickerson**, R.P. Wise, Plant Sciences Institute Grant, "SoyPLEX', $60,000, July 2005-June 2007.

7. **J.A. Dickerson**, **Foreign Travel Grant**, Faculty Senate Committee on Recognition and Development, April, 2004.

8. **J.A. Dickerson**, E. S. Wurtele, Carver Trust Grant, Iowa State University, "High-Dimensional Hypergraphs in Immersive Virtual Reality: a Novel Method to Visualize Metabolic Networks," **$25,000**, April 16, 2002-July 31, 2003.

9. **J.A. Dickerson**(PI), E. Wurtele (Botany), P. Becraft(ZooGen), D. Ashlock(Mathematics), **ISU Plant Sciences Institute**, " Computational methods for gene expression data to understand the actions and interactions of genes," **$50,000**, April 2000-April 2002.

10. **J.A. Dickerson**(PI), **ISU Research Initiation Grant**, "Human-centered Display Design," **$7,500**, 1 January 96-30 June 96.

11. **J.A. Dickerson**(PI), **ISU EFTF**, "Image Processing Tutorial Development," **$12,000**, 01 July 95-31 January 96.

Equipment and Software Grants

1. **J.A. Dickerson**, G. Kandoi, **Microsoft Azure Research Award,** $20,000 Azure cloud sponsorship, December 2017.

2. **J.A. Dickerson**, **Elanix Corporation**, SystemView Software for the DSP and Communications Laboratories, **$720,000**, August 2001, renewed September 2002.

3. **J.A. Dickerson,** W.C. Black, **Teradyne Corporation**, DSP and interface boards for Senior Design Projects, **$6,000**, February, 2001.

4. **J.A. Dickerson**, **Texas Instruments**, DSP Boards and Development Software, **$60,375**, November 2000.

5. **J.A. Dickerson,** W.C. Black, **Teradyne Corporation**, High speed workstation and DAQ card for Senior Design Projects, **$20,000**, October, 1999.

6. **J.A. Dickerson**, **Texas Instruments**, DSP Boards and Code Composer Software, **$24,000**, September 1999.

7. **J.A. Dickerson**, **DSP Development**, 10 DA/DISP Software Licenses, **$4,000**, 1996, Renewed February 1997.

D. Pending Grants and Contracts

> *Follow same format as II.C. above.*

III. TEACHING AND STUDENT MENTORING

A. Instruction for ISU

Provide information for undergraduate and graduate courses, both on and off campus. Include semester, course identifier, course name, number of credit hours, lab/no lab, number of students in class, and number of TAs.

For example:
1. Spring 2009: ENGR XXX – "Course I Title", 3 Credits, No Lab, 145 students, 2 TAs.
2. Fall 2010: ENGR XXX – Course II Title", 4 Credits, Lab, 35 students, no TA.

Term (most recent first)	Course number	Course Title	Credits	Lab	Number of students	TA/graders
Fall 2018	EE224	Signals and Systems I	4	Yes	65	1 G/1 UG
Spring 2018	BCB 570	Computational Functional Genomics and Systems Biology	3	No	10	0.5
Fall 2017	EE224	Signals and Systems I	4	Yes	88	1 G/1 UG
Spring 2017	BCB 570	Computational Functional Genomics and Systems Biology	3	No	12	0.5
Fall 2016	EE224	Signals and Systems I	4	Yes	85	1.5 G/1 UG
Spring 2016	BCB 570	Computational Functional Genomics and Systems Biology	3	No	9	0.5
Fall 2015	EE224	Signals and Systems I	4	Yes	90	1.5 G/1 UG
Spring 2015	BCB 570	Computational Functional Genomics and Systems Biology	3	No	12	0.5
Fall 2014	EE224	Signals and Systems I	4	Yes	90	1.5 G/1 UG
Spring 2014	BCB 570	Computational Functional Genomics and Systems Biology	3	No	16	0.5
		Away at NSF as Program Officer, don't recall before that.				

B. Curricular Development Activity for ISU

1. ME 585 Fundamentals of Predictive Plant Phenomics. Worked with Ted Heindel in Mechanical Engineering Department to develop the core course for the P3 program. I provided the teaching and labs on data science and machine learning (15 % of class).

2. CE 570 Computational Functional Genomics and Systems Biology (also BCB570) (2008S, 2009S, 2010S, 2011S, 2014S, 2015S, 2016S). Developed a new course in systems biology. This involves creating new lectures and material from a variety of sources to teach students the basics of systems biology ranging from systems of differential equations to large-scale network analyses. This course covers using engineering systems approaches to model and better understand biological systems.

3. EE224. Signals and Systems I (2004F, 2005S, 2005F, 2007S, 2009F, 2014F, 2015F, 2016F,2017F,2018F) Developed an new sophomore-level course in signals and systems. Designed a

complete set of laboratories using Matlab for the course to illustrate basic properties of signals in both the time and frequency domains. Also added in applications such as image processing, simple audio effects, and design of AC power converters. Redesigned the labs in 2018 to add in sensors and data acquisition capabilities. Also added new labs in auralization and sound effects for video games.

4. EE 571X, Adaptive Fuzzy Systems (1995F,1997F) 3, Developed this new course that combined learning systems such as neural networks and statistical clustering methods with the area of fuzzy logic control and pattern recognition. The course featured projects in longitudinal automotive control, pattern recognition, and a final project applying fuzzy reasoning to poker strategy. This class was broadcast as part of the Distance Education program (1997).

5. EE 424, Introduction to Digital Signal Processing and Laboratory (1996-2000S,2000F, 2008F) Developed and modernized this course. This development included several noteworthy achievements. I obtained corporate donations of money, equipment, and software from Rockwell International, Texas Instruments and Elanix, to develop a new teaching and research laboratory in Coover Hall for Digital Signal Processing and Wireless Communications. Developed new laboratory experiments that emphasize the development of an entire system instead of separate DSP concepts, created new computerized demos that teach concepts in signal processing in a multi-disciplinary form. This class was part of the Distance Education, Kirkwood Community College, BSEE program (2000).

6. EE 423, Communications Systems Laboratory (1999F, 2000S) Developed the laboratory course to focus on applications of digital communications, obtained corporate donations of money, equipment, and software to develop a new laboratory facility in Coover Hall for Digital Signal Processing and Wireless Communications. This lab is being further updated as part of my NSF Combined Research and Curriculum Development grant in Hardware/Software co-design of wireless devices.

7. EE 528, Digital Image Processing (1995S,2000S,2001S) Developed a complete series of Matlab demonstrations and tutorials for image processing concepts and applications using an internal ISU grant from the Engineering Fee Task Force (EFTF); reoriented the course towards computer vision and image understanding.

8. EE 524, Digital Signal Processing (1998 F,1999F,2000F, 2006F) Developed a complete series of Matlab demonstrations for signal processing concepts and applications, added in sections on Multirate signal processing and adaptive signal processing to the existing course. This class was broadcast as part of the Distance Education program (2000).

9. EE421, Communications Systems I (2001F) Redesigned the undergraduate communications curriculum for more of an emphasis on digital communications systems and overall system design considerations beyond the airlink between sites. This class was part of the Distance Education, Kirkwood Community College, BSEE program.

10. EE422, Communications Systems I (2002S) Redesigned the undergraduate communications curriculum for more of an emphasis on wireless digital communications systems. The course included student projects on interpreting wireless communication system specifications and modeling parts of these systems. This class was part of the Distance Education, Kirkwood Community College, BSEE program.

11. EE 324, Discrete Signals and Systems (2002F 3.57; 2003S 3.76) Reinvigorated course to include hands-on experience dealing with real signals such as digital music and images. Developed complete set of course notes that require student interaction to complete problems and document key-points. Notes were used by other professors the next year in teaching the course.

12. EE/CE 507, VLSI Communications Circuits (2003 S, Distance Education) Developed new-co-taught course that focuses on communications theory as well as VLSI implementations. Course was co-taught with R. Weber as part of an NSF Combined Research and Curriculum Development grant.

13. EE547. Pattern Recognition (2003F, 2006S) Incorporated current research results in bioinformatics into this class by using data from microarray experiments in Acetyl CoA metabolism provided by Prof. Eve Wurtele in Botany.

C. Supervision of Students as Major Professor

> *For each graduate student supervised, provide the student's name, level (e.g. MS, PhD), co-advisor (if any), dates work was supervised, thesis title if known, and the student's placement / current status.*
>
> *For example:*
> *1. Mary Cooper, PhD, June 2000-July 2005, "Dissertation Title", now at Intel.*
> *2. John Smith, MS, (Jim Atafaris, co-advisor), June 2003-July 2005, work in progress - degree expected August 2005.*

PHD SOLE ADVISOR
1. LEE SEOYOUNG, PHD, E E, "Interference Suppression for DS/CDMA Systems in Non-Gaussian Impulsive Channels", granted May 98, now at Korean Telecommunications Research Institute (ETRI).
2. CHOI JONGBAE, PHD, E E, "Data Fusion Using Expected Output Membership Functions", granted January 99, now at Korean Government, Technological Development.
3. SHAO BIN, PHD, A E, (co-advised by Hongwei Xin) "Maintaining Swine Thermal Comfort Levels using Image Processing Methods", granted December 03, now at Motorola.
4. DU PAN, PHD, E E, "Multi-scale genetic network inference based on time series gene expression profiles," granted December 05, now at Northwestern University Cancer Research Center, Dr. Du won the Research Excellence award for his work.
5. ETZEL JOSET AMY, PHD, BCB, (co-advised by Ralph Adolphs (U of Iowa)) "Algorithms and Procedures to Analyze Physiological Signals in Psychophysiological Research", granted May 06, now at University Medical Center Groningen, Netherlands.
6. FANG XIAOPENG, PHD, ME, (co-advised by Jim Bernard) "Engineering Design Using Genetic Algorithms", granted January 07, now at Cummins.
7. YANG YUTING, PHD, CPR E, "Interactive Visualization of Metabolic Networks using Virtual Reality", granted January 06, now at Intel.
8. KABALA DAVID JONATHAN, PHD, HCI, "Developing virtual reality applications: The design and evaluation of virtual reality development tools for expert and novice users", Degree August 2011, now at Aecholon Technologies.
9. JIA MING, PHD, CPR E, "Visualizing biological data in Google Earth", August 2011, now at Pinterest.

PHD BCB (dual advisors required in BCB, the primary advisor typically funds the student and does most advising; the secondary advisor supports student as needed)
1. VAN HEMERT, JOHN LOUIS, PHD, BCB, (secondary advisor Basil Nikolau) "Methods for Integrated Biochemical Pathway Analysis", Degree granted, December 2010. Mr. Van Hemert has received the Grape Research Coordination Network Fellowship in 2009 to conduct research at the University of Padua, Italy, the Cornette Fellowship from the BCB program for a strong record of research, accomplishments, and the Iowa State University Research Excellence Award, now at Pioneer Hybrid.
2. XIA TIAN, PHD, BCB, (secondary advisor Xun Gu), "Network Modeling in Systems Biology", Spring 2010, now Assistant Professor, Central China Technical University, Assistant Research Professor, Northwestern University.

3. MOSCOU MATTHEW JAMES, PHD, BCB, (primary advisor Roger Wise), *"*Deciphering the Transcriptional Regulation and Response of Barley During Obligate Biotroph Invasion," Degree granted Spring 2010, postdoctoral assistant at Innes Lab.
4. STUDHAM MATTHEW EDWARD, PHD, BCB, (primary advisor Gustavo Macintire) "Transcriptional defense response of the soybean plant, *Glycine max*, in reaction to infestation by the soybean aphid, Aphis *glycines*," granted summer 2010, now a post-doc .
5. BOGGESS ERIN, PHD, BCB, (secondary advisor Laura Jarboe) work in progress, Degree expected, May 2018.
6. BAIS PREETI PUSHPA, PHD, BCB, (secondary advisor Basil Nikolau) "Bioinformatics methods for metabolomics based biomarker detection in functional genomics studies", Degree November 2011, now at Stemina, Madison, Wisconsin, Senior Bioinformatics Specialist.
7. ZHOU WENGANG, PHD, BCB, (secondary advisor Xun Gu) "Machine learning methods for omics data integration," May 2011, now at Pioneer Hybrid, Senior Bioinformatics Specialist.
8. SUCAET YVES, PHD, BCB, (primary advisor Eve Wurtele) "Integration of large datasets for plant model organisms," Degree granted, December 2013, now a a Section Head in Data Management & Bioinformatics at HistoGenex, Antwerp, Belgium.
9. FU YAO (AL), PHD, BCB, (secondary advisor Laura Jarboe) "Understanding biological regulatory systems using computational models: Reconstruction, Analysis and Integration" Degree Granted July 2013, now at Micron in Research and Product Development.
10. MUKHERJEE SHREYARTHA, PHD, BCB, (primary advisor William Beavis), "Connecting the Maize Transcriptome with Heterosis and Inbreeding Depression," Degree Granted December 2013.
11. WALSH, JESSE R, PHD, BCB, (secondary advisor Jackie Shanks, Chemical and Biological Engineering) "Computational methods for integrated analysis of omics and pathway data", May, 2016.
12. MISTRY, DIVYA, PHD, BCB, (secondary advisor Chris Tuggle, Animal Science), work in progress.
13. LIU, RUOLIN, PHD, BCB, (secondary advisor Peng Liu, Statistics), "Transcript assembly, quantification and differential alternative splicing detection from RNA-Seq", 2017.
14. GAURAV, KANDOI, BCB, (secondary advisor Carolyn Dill, Genetics and Genomics)

MS
1. ZIMMERMAN KLAUS, MS, E E, "Computational Complexity Reduction in Fractal Image Compression by Adaptive Codebook Clustering", granted December 96, now at Sony Europe.
2. BENDLE JOHN, MS, E E, (co-advised by Jerry Vogel) "Fuzzy Control of an Automated Payload Return System", granted May 97, now at Johnson Space Center, Houston.
3. LEE LIT MIN, MS, CPR E, "Rapid correlated database generation for traffic simulation", granted December 00.
4. ECCLES JEREMY SAMUEL, MS, E E, "An evolvable virtual ecosystem: Applying genetic algorithms, artificial neural networks, and fuzzy systems to virtual environments", granted December 98, now at Fraunhofer Institute.
5. HONG JIAN, MS, E E, "Autonomous Star Identification Using Fuzzy Neural Logic Networks", granted May 98, now at Motorola.
6. MIRZA SIKANDER HAYAT, MS, E E, "", granted January 99.
7. HONECKER AARON WILLIAM, MS, E E, "Anomaly Intrusion Detection: a Distributed ARTMAP Neural Network Approach", granted January 01, now at IBM Rochester.
8. AHIR HEMLATA KISHOR, MS, E E, "Simulation of a Wideband CDMA System", granted January 00, now at Motorola.
9. LUM ANNIE LI KEOW, MS, E E, "Intelligent Signal Processing Methods for Interference Suppression", granted January 99.
10. SHAO BIN, MS, E E, "Maintaining Swine Thermal Comfort Levels using Image Processing Methods", granted December 00.

11. THURMAN SALLY CATHERINE, MS, CPR E, "Analysis of IntServ and DiffServ QoS delivery systems", granted May 02, now at Rockwell International.
12. VANDER VELDEN MELINDA SUE, MS, E E, "Classification of ultrasonic signals using hidden Markov models", granted January 02, now at Pioneer Seeds.
13. COX ZACHARY THOMAS, MS, E E, "FCModeler: Fuzzy Analysis of Metabolic Networks", granted January 02.
14. GONG JIAN, MS, E E, "Application of gene ontology and rough sets theory in predicting molecular functions and biological processes for microarray gene expression data", granted May 05, now at Washington University, St. Louis.
15. KIRK CHRISTOPHER T, MS, CPR E, "Adaptive Fuzzy Intrusion Detection", granted December 02.
16. TANG XIAOYUN, MS, CPR E, "Integration of the MIAME standards and the Plant Ontology into BarleyBase", granted May 04.
17. XIN JIANQIANG, MS, CPR E, "Feature selection and visualization techniques for network anomaly detector", granted December 03, now at Scottrade.
18. ZHANG HAILONG, MS, BCB, (co-advised by Eve Wurtele) "Development of a metabolic network database", granted January 02, now at University of New Hampshire.
19. EEKHOFF ERIC LEE, MS, E E, "Wireless sensor networks and personal area networks for data integration in a virtual reality environment", granted May 04, now at Motorola.
20. HERO JAYME EARL, MS, CPR E, "Wireless sensor networks for interaction in virtual environments", granted January 04, now at Rockwell International.
21. LWAKABAMBA BERNARD S, MS, E E, "Performance analysis experiments for the wireless sensor networks integrated into the C6 virtual reality environment", granted December 04.
22. MCGARTHWAITE LISA C, MS, HCI, "BioN: a novel interface for biological network visualization", granted May 08, now at Garmin.
23. VELAGALETI NARASIMHA RAO, MS, COM S, (co-advised by John Wong) "Attacks and countermeasures on routing protocols in wireless networks", granted December 08.
24. BEAL RIEN LERONE, MS, E E, (co-advised by Degang Chen) "A low voltage rail-to-rail operational amplifier with constant operation and improved process robustness", granted January 09, now at CIA.
25. WILLIAMS VALERIE JANE, MS, HCI, "Creating a responsive, real-time, malleable environment for dancers", Fall 2010.
26. CAMBELL, PRINCESS (PJ), MS, HCI, "Practical motion planning for aerial-like virtual agents in Meta!Blast: A full and complex three dimensional virtual environment", 2012.

D. Service on Graduate Student Committees
PhD Over 60 committees

Masters Over 40 Committees
I have not kept a complete list of service over the year.

E. Supervision of Post-Doctoral Students and Professional Staff
1. Shubalaxmi Kher, PhD, Post-doc, performed research on metabolic pathway integration, from 9/2006-6/2008; Professor at Arkansas State University in the Electrical Engineering Dept beginning August, 2008.

2. Lishuang Shen, PhD, Post-doc, Developer of BarleyBase, 10/2003-12/2005 Toronto Medical Center.

3. Ethalinda Cannon, MS, Lead software developer for PLEXdb,

4. Linyong Mao PhD, Post-doc, Metabolomics data analysis, 1/2008-3/2009 at start-up company, Metabolix.

5. Sudhansu Dash PhD, Post-doc, Curator for PLEXdb and bioinformatics software development, 1/2007-2015. Currently at The National Center for Genome Resources, Santa Fe, NM.

F. Supervision of Independent Study and Undergraduate Research
Honors Projects

1. Jack Hou, Bioinformatics Signal Processing, Fall 2010.
2. Michael Zuercher, "Acoustically controlled fountain," Spring 2005.
3. D. Harkness (freshman), "JAVA database interface," Spring 2002.
4. A. Suckow (freshman), "Wireless Modem Experimentation for the C6," Spring 2001.
5. Todd Magee (senior), "DSP implementation of Audio Reverberation Algorithms," Spring 2001.
6. Eric Abell (senior), "Adaptive Filtering Implementations," Spring 2000.
7. Clint Martin (senior), "Time-Frequency Analysis of Musical Notes," Fall 1999.
8. Dakota Bailey (freshman), "Fuzzy Subtractive Clustering," Spring 1998.
9. Kurt Harman (senior), "Modeling of 3D Audio using the Analog Devices 2181 Board," Spring 1997.

Undergraduate Research Assistants
Mohamed Gesella (2018)
Dalia Abu-Sheisha, Johan Goldie (2011)
Greg Hazen, Curtis Ullerich, Tyler Bell, William Peterson, (2010-2011)
Jack Hou (2009-2010)
Joseph Grgic   2009
Emmanuel Owusu 2008
Akul Singhania, Gavin Monroe, 2007-2009
Jason Wolffe, Jon, Tyler Clifton, 2007
Andrew Couch, Adjani Thomas 2006-2007
Pavithra Ragopalan 2005
Adam Tomjack 2002-4
Andres Reinot 2003-5
Chiou-guey Liaw 2002-2005
Paul Jennings 2004-2006

Senior Design Project Supervision
1. EE224 Lab Redesign, 2017-2018.

2. Computer Control of Theater Performance Electronics (2005-6), Sponsor: Co'Motion Dance Company.

3. Adopt A Caterpiller (2004-2005), Sponsor Reimann Gardens.

4. Virtual Robots and Artificial Life Simulator (2003-2004), Sponsor Daniel Ashlock, ISU Math Department.

5. Automated Yield Estimator (with Pat Patterson) (2002)

6. Audience Interaction Systems (with Carolina Cruz-Neira) (2002)

7. DSP board implementation of Oscilloscope for Teradyne Corporation (2000F-2001S)

8. PC Oscilloscope project for Teradyne Corporation (1999F-2000S)

9. Dual-user viewing for the C2 with C. Cruz-Neira (1998F-1999S)

10. Voice controlled switching project for Visionaire Corporation (1997F, 1998S)

11. Virtual Driving Simulator Project (1996F,1997S)

12. HABET Cutdown Device (1997S,1997F)

G. Non-ISU Instruction (e.g. Short Courses, Workshops, Training)

1. Mentor to Mohamed Gesella, Carver undergraduate scholar. Project in machine learning.

2. Mentored two incoming freshman students, Laura Reints and Nick Evans, who were underrepresented students in engineering over summer 2009 in the CBIRC undergraduate research program.

3. Taught tutorials on Metabolic network visualization and analysis using MetNet Tools for Cytoscape, Iowa State University, June 2007, South Dakota State August 2007.

4. Mentored summer Carver Scholar, Rien Beal for a project in graph clustering. Rien graduated from the EE dept as a MS student in Signal Processing and plans to continue for a PhD in VLSI. I also helped him get a fellowship from Texas Instruments to support his MS studies.

5. Mentored a female computer engineering student (Stacy Baldwin) as part of Bioinformatics and Computational Biology NSF/NIH Summer Institute, 2006.

6. Mentored two female, minority students (Alicia Guidry and Machele Lugo) as part of Bioinformatics and Computational Biology NSF/NIH Summer Institute, 2005.

7. Mentor to George Washington Carver Scholar, Terrell Jones.

8. Gave tours/presentation to the Women in Electrical Engineering mentoring group for freshman students.

9. Distance education to Kirkwood Community College as part of the off-campus BSEE degree over the Iowa Communications Network: EE424 Digital Signal Processing (2000), and EE421 Communications Systems I (2001).

10. Graduate distance education program in College of Engineering: EE524 Digital Signal Processing (2000); EE571X Adaptive Fuzzy Systems (1997). Courses offered around Iowa and neighboring states via videotape.

11. LEAD Program for Minority Engineering Students-Gave presentations on Engineering education, participated in meal-time program 1996, 1997.

IV. INSTITUTIONAL SERVICE

A. University-Level Service

1.	Member	Dean of Engineering Search Committee	2018-Present
2.	Member	Early Achievement in Research Awards	2018
3.	Member	Biotech Council	2013-2016
4.	Member	Research Center Review Committee, for Vice Provost for Research	2009
5.	Member	Dean of Engineering Search Committee	2008-2009
6.	Member	University research awards committee	2009
7.	Member	Center Review	2009

8. Member	Graduate Council	2005-2006
9. Member	Dean of Engineering Search Committee	2003-2004
10. Member	Disciplinary Committee	2002-2005
11. Member	Parks Library representative from Electrical and Computer Engineering	1999-present

B. College-Level Service

Interdepartmental Committees

1. Member	Data Science Curriculum Committee	2018-Present
2. Member	Bioinformatics and Computational Biology Program Admissions Committee, Curriculum Committee	2017-Present
3. Member	Software Engineering Governance Committee	2016-2017
4. Member	Data Science Undergraduate Degree program development	2016-2018
5. Member	Bioinformatics and Computational Biology Program Supervisory and Curriculum Committees	2014-Present
6. Chair	Bioinformatics and Computational Biology Program	2011-2013
7. CoE Rep	Plant Sciences Institute Leadership Board	2008-2011
8. Assoc Chair	Bioinformatics and Computational Biology Program	2009-2010
9. Member	Search Committee, Systems Biology, GDCB	2006, 2007,2008
10. Member	Search Committee, USDA-ARS Research Geneticist /Computational Biologist	2003- 2004, 2005
11. Member	Computer Committee, Baker Center for Computational Biology	2001-2004
12. Member	BCB Advisory Committee	2002-Present
13. Member	HCI Program Advisory Committee	2004-Present

College of Engineering Committees

1. Member	College Research Committee	2018-Present
2. Member	Dean of Engineering Search Committee	2018-2019
3. Member	Teaching and Research Rewards Structure	2010
4. Member	Budget Scenario Planning Committee	2009
5. Member	Engineering Dean Search Committee	2008-2009
6. Cluster hire champion for hires in the biosciences area		2008-2009
Member	Faculty Enrichment Leaves and Foreign Travel Committee	1999-2002

C. Department-Level Service

1. Member	ECpE Administration Committee	2018-Present
2. Member	ECpE Strategic Plan Implementation Committee	2018-2019
3. Director	ECpE Research Committee	2018-Present
4. Member	ECpE Graduate Committee, Admissions	2017-Present

5.	Member	CpE Search Committee	2017-2018
6.	Chair	ECpE Search Committee	2015-2016
7.	Member	Department Promotion and Tenure Committee	2013-2017
8.	Member	ECPE research committee	2010-2011, 2013-2015
9.	Member	ECpE Dept Chair Search Committee	2009-2010
10.	Member	Faculty Search Committee	2005-2007
11.	Member	Department Promotion and Tenure Committee	2003-2005
12.	Member	ECpE DEO Evaluation Committee	2000-2001
13.	Chair	Communications and Signal Processing Area Committee	2000-2004
14.	Member	Graduate Committee	1999-2001
15.	Member	Computer Usage Committee	1998-2001,2002-2005
16.	Member	Faculty Search Committee	1999-2000
17.	Member	Elections and Oversight Committee	1998-2000
18.	Member	Department Promotion and Tenure Committee	1997-1998
19.	Member	Junkins Chair in Communications Faculty Search Committee	1996-1997
20.	Member	Communications Faculty Search Committee	1996-1997
21.	Member	Department External Advisory Board (Internal Member)	1995-1996
22.	Member	Communications and Signal Processing Area Committee	1995-2001

V. PROFESSIONAL SERVICE

A. Editorial and Review Service for Manuscripts
Journal Reviewing

Bioinformatics, Genetics, BMC Systems Biology, BMC Bioinformatics, Plant Physiology, The Plant Journal, IEEE Transactions on Fuzzy Systems, Systems Man and Cybernetics, Pattern Recognition, Evolutionary Computation, Nucleic Acids Research, Integrated Systems Biology, PLoS. Many Conferences- stopped keeping list years ago.

Guest editor, *IEEE Transactions on Systems, Man, and Cybernetics, B*

Editorial Advisory Board for *Current Bioinformatics* Journal   2005-present

Associate Editor, Frontiers in Plant Science, Technical Advances in Plant Science, 2015-Present.

B. Service to Professional Societies
1. **Institute of Electrical and Electronic Engineers (IEEE)**
   a.   Guest Editor, Special Issue of the IEEE Transactions on Systems, Man, and Cybernetics, B on Fuzzy Logic in Medicine and Biology   2005

   b.   Vice-Chair of the IEEE Central Iowa Section   2004

   c.   Member of the Technical Program Committee for the 2003 *IEEE International Conference on Fuzzy Systems* (FUZZ-IEEE 2003), May, 2003.

   d.   Secretary/Treasurer of the IEEE Central Iowa Section   2003

e. Member of the Technical Program Committee for the 2001 *IEEE International Conference on Fuzzy Systems* (FUZZ-IEEE 2001), December, 2001

f. Chair of the IEEE Central Iowa Section of the Signal Processing and   Communications Chapter 1996-Present

g. Member of the Technical Committee for the *IEEE Midwest Symposium   on Circuits and Systems,* Ames, IA, August 1996.   1996

h. Reviewer for *IEEE Transactions on Systems, Man, and Cybernetics,   IEEE Transactions on Neural Networks, IEEE Transactions on Signal   Processing,* and *IEEE Transactions on Fuzzy Systems*   1995-Present

2. **International Neural Network Society (INNS)**

a. Reviewer for *Neural Networks,* Journal of the Neural Network Society   1998

b. Member of the Conference Committee for the *World Congress on Neural Networks (WCNN 95)* Washington D.C., July 1995.   1995

c. Taught a half-day short course on Fuzzy Function Approximation- *World Congress on Neural Networks (WCNN 95)* Washington, D.C., July 1995.   1995

North American Fuzzy Information Processing Society (NAFIPS)

a. Board Member   2002-2006

b. Technical Program Committee for the *NAFIPS Annual Meeting.* 2003, 2004,2007

c. Member   1997 – Present

d. Reviewer for *International Journal of Approximate Reasoning, Fuzzy Sets and Systems* 1998 – Present

C. Grant Review Activities

1. National Science Foundation:
    - Panel Reviewer NRT, 2016-2018
    - Panel Lead EPSCOR Review, April 2016,
    - 2 Panels, CISE and Biology
    - Panel reviewer for Biology Directorate, December, 2013.
    - Panel Review and Site Visits for NSF centers from the Cyberinfrastructure Office, February 2010, Site Review Team Chair, November 2010.
    - Panel Reviewer for BIO directorate, SBIR Program, Biological Databases and Informatics, ad hoc reviews at least 2-3 times/year. 2003-Present
    - Panel Reviewer for CISE directorate, CyberSEES, REU Sites, IRI program and Major equipment grants, Combined Research and Course Development, Strategic Technologies for the Internet, Cyber-enabled Discovery and Innovation (CDI), Information Technology Research (ITR).   1996-Present
    - Panel Reviewer for, ENG Directorate,   2001,2002
2. National Institutes for Health
    - STTR Panel, November, 2010, June 2011, 2015.
    - Metabolomics Panel, October, 2007.
    - Japan-US Metabolomics for a Low Carbon Society, July, 2011.
3. Netherlands Organisation for Scientific Research (NWO, the Dutch research council).2005, 2006
4. United States Department of Agriculture, 2009-2011
5. Kentucky Science and Engineering Foundation, 2010.

D. Government, Educational, or Corporate Advisory Committees

1. MaizeGDB External Advisory Board, USDA project, 2013-2016.

2. South Dakota Biomedical Research Infrastructure Network External Advisory Committee, funded by the National Institute of General Medical Sciences Institutional Development Program, Bioinformatics Expert, University of South Dakota, 2013-Present.

3. Invited panelist to the National Science Board investigation on the efficacy of medium-size grants, March , 2011.

4. Member of Scientific Advisory Board Bioinformatics Centrum Gatersleben-Halle (BIC-GH), Germany.

5. Governing board of the Grape Research Coordination Network for promoting collaborations in the Grape research community, funded by NSF.

E. Other Professional Service

1. Program Officer, Advances in Bioinformatics, Postdoctoral Fellows at the Intersection of Biology and Mathematics and Physical Sciences, Division of Biological Infrastructure, BIO Directorate. 2011-2013.

VI. OUTREACH, COMMUNITY ENGAGEMENT AND OTHER ACTIVITIES

A. Outreach Activities

For each activity, provide title, date(s), and brief description of activity.

B. Community Engagement Activities

1. Judge, Adventures in Supercomputing, 1996, 1997, 1998,1999, 2000.

2. Judge, Iowa State Science and Technology Fair, 1997, 1998, 2000.

3. Judge, First Lego League, 2005-2007.

4. Math and science night exhibitions at local elementary schools.