Curriculum Vitae

Heike Hofmann

Department of Statistics

Associate Professor

Degrees:

Ph.D.	Augsburg University (Germany)	Statistics	Dec. 2000
M.Sc.	Augsburg University (Germany)	Mathematics (minor in Computer Science)	Feb. 1998

Professional Experience:

Iowa State University appointment:

Associate Professor	Statistics	Aug 2007 – present
Assistant Professor	Statistics	Jan 2001 – Aug 2007

Iowa State University affiliations:

Core Member Bioinformatics and Computational Biology	May 2009 – present
Human Computer Interaction	May 2009 – present

Positions elsewhere:

Post-Doc	AT&T Labs Florham Park NJ	Statistics	March 2001 – Dec 2001
Post-Doc	Augsburg University	Mathematics Department	Dec 2000 – March 2001

Teaching:

Courses taught:

Semester	Course Number & Title	Enrollment	Evaluation
Fall 2011	Stat 490: Data Visualization Competition for the DOT	7	
Fall 2011	Stat/Engl 332: Visual Comm. of Quantitative Information	20	
Fall 2011	Stat 430: Empirical Methods for Computer Science with Dianne Cook, Charles Kostelnick	25	
Spring 2011	Stat 480: Applied Statistical Computing	45	4.42
Fall 2010	Stat 579: Introduction to Statistical Computing (A & B)	50	3.80 , 4.64
Fall 2010	Stat 557: Categorical Data Analysis	18	4.33
Spring 2010	Stat 480: Applied Statistical Computing	27	4.50
Fall 2009	Stat 579: Introduction to Statistical Computing (A & B)	50	4.40
Fall 2009	Stat/Engl 332X: Visual Comm. of Quantitative Information	15	4.11
Spring 2009	Stat 480: Applied Statistical Computing	18	4.36

Semester	Course Number & Title	Enrollment	Evaluation
Fall 2008	Stat 430: Empirical Methods for Computer Science	25	4.48
Fall 2008	Stat 557: Categorical Data Analysis	15	3.80
Spring 2008	Stat 330: Prob. and Stat. for Computer Science	45	4.32
Spring 2008	Stat 480: Applied Statistical Computing with Dianne Cook	25	3.96
Fall 2007	Stat 330: Prob. and Stat. for Computer Science	31	3.90
Fall 2007	Stat 690F: Special Topics in Statistical Graphics	6	
Spring 2007	Stat 511: Statistical Methods	55	3.17
Spring 2007	Stat/Engl 332X: Visual Comm. of Quantitative Information with Dianne Cook, Charles Kostelnick	7	4.29
Fall 2006	Stat 557: Categorical Data Analysis	14	4.64
Fall 2006	Stat 330: Prob. and Stat. for Computer Science	14	3.85
Spring 2006	Stat 511: Statistical Methods	55	3.10
Spring 2006	Stat/Engl 332X: Visual Comm. of Quantitative Information with Dianne Cook, Charles Kostelnick	8	
Spring 2005	Stat 511: Statistical Methods	41	3.24
Fall 2004	Stat 557: Categorical Data Analysis	29	3.28
Fall 2003	Stat 330: Prob. and Stat. for Computer Science	ca. 45	4.64
Fall 2003	Stat 322: Probabilistic Methods for Electrical Engineers	ca. 65	4.55
Spring 2003	Stat 330: Prob. and Stat. for Computer Science	ca. 55	4.37
Fall 2002	Stat 330: Prob. and Stat. for Computer Science	ca. 40	4.35
Spring 2002	Stat 330: Prob. and Stat. for Computer Science	ca. 25	4.27

Course and curriculum development activity:

Stat 579 Introduction to Statistical Computing:
re-worked and extended material taught: data centered modules with lab components with a strong emphasis on working with real (and occasionally large) data and problem solving techniques.

Stat 690 Special Topics in Statistical Graphics:
with Dianne Cook: reading-based course on statistical graphics. We have been discussing a wide range of statistical graphics: visual perception, statistical testing of effective displays, multidimensional graphics, interactive statistical graphics, elements of data exploration, grand tours and projection pursuit.

Stat 503 Exploratory Methods and Data Mining:
added material on categorical data: measures of associations and use in algorithms, such as association rules
added material on large databases.

Stat 332 Visual Communication of Quantitative Information:
with Dianne Cook and Charles Kostelnick (English): undergraduate course (with graduate credit), team-taught for the first time in Spring 2006.

Stat 490 Fall 2011: 2 projects for DOT challenge: visualizing transportation data
safety (6 students): visualization of state regulations regarding DUI convictions and effects on rate of fatal accidents

economics (1 student): visualization of effect of wind patterns on efficiency of airports

Stat 430 Statistics for Computer Scientists:
with Bill Duckworth: statistics for CS graduate students to be taught in Spring 2006 (by Arka Ghosh).

Instructional Material:
Lecture notes for Stat 480, Stat 430, Stat 330, Stat 322, Stat 511, and Stat 557

Advising:
Undergraduate Advising:

Undergraduate Advisor since Fall 2009
Fall 2011:
22 Statistics major students (6 Freshman, 0 Sophomores, 6 Juniors, 5 Seniors, 5 of Dr Froelich's students)
Fall 2010 - Summer 2011:
14 Statistics major students (1 Freshman, 7 Sophomores, 4 Juniors, 2 Seniors)
Fall 2009 - Summer 2010:
16 Statistics major students (10 Freshmen, 3 Sophomores, 2 Juniors, 1 Senior)

Lendie Follett Summer 2011, with Ulrike Genschel
project: graphical exploration of the ASA Data Expo 2011, which led to a submission to the poster session at JSM Miami and resulted in the 1st prize.

Barret Schloerke (Computer Engineering) (Spring 2008 – Fall 2010)

Chris Kilion (Statistics) (Spring 2008 – Fall 2009)
Both Chris and Barret are currently working on a large data exploration project with the graphics working group. Chris is in charge of the database, and has come up with very innovative visualizations. Barret is helping with the data management and implementation in R packages.

Michael Claveria (Statistics VIGRE student) (Summer 2005)
Michael took part in our summer VIGRE program for undergraduate research experience. He worked as part of the Statistical Computing and Graphics VIGRE working group on the Information Visualization challenge
(see http://www.public.iastate.edu/hofmann/infovis).

Oksana Yakhnenko (Computer Science) (Summer 2002 - Summer 2004)
Oksana is working as an RA on a project to visualize effects of log-linear models. She has implemented Java software over the summer, and is working on a paper we intend to submit for the student's paper award of ASA's Graphics section.

Seth Bacon & Chad Kilgore (Computer Science) (Summer 2002)
Seth and Chad have designed and implemented a mysql database for instructional material funded by the LASCAC COLL grant.

Graduate RA:

Yihui Xie (Fall 2010 – Summer 2011)
Yihui has been sponsored as an RA on the NSF grant for ggobi development. He is the main developer of the cranvas package for interactive statistical graphics in R.

Mahbub Majumder (Fall 2010, Fall 2011)
Mahbub is working as an RA on the grant for statistical inference for graphics. He has been

running user studies to evaluate subject-specific error rates, as well as determining general type I and II error rates for graphical inference situations in the framework of regression analysis.

Xiaoyue Cheng (Spring 2011 –)
Xiaoyue has been employed as part of our agreement with Novartis. She has been working on various graphical user interfaces to help with data management in large scale situations: the missingGUI and the mergeGUI. Both are packages on CRAN. Over the summer she was sponsored by the Google summer of code for working on an interactive interface to time series.

Marie Vendettuoli (BCB) (Nov 08 - Jan 09, April 2009 –)
Marie has been working with me for her 2nd rotation (BCB requirement of first year students). She is implementing a graphical user interface for visualizing the process of analyzing metabolomic data.

Yuanyuan Sun (BCB) (Summer 2008 - Fall 2009)
Yuanyuan has been working with me on a grant sponsored by Novartis. She was supposed to be working on a new tree algorithm to find homogeneous subsets of individuals in large populations. Novartis is particularly interested in identifying sub-populations with minimal adverse response to particular drugs.

Michael Lawrence (BCB) (August 05 - December 07)
Michael is working on the NSF grant with Basil Nikolau and Eve Wurtele. He will help with the analysis of experiments on the biotin network.

Lifeng You (Statistics) (Fall 2003)
Lifeng has been working on a data analysis of microarray data. The data has been collected by Carol Foster in Eve Wurtele's lab (Botany). This project was part of Lifeng's creative component.

M.Sc. in progress
  Takisha Harrison (Spring 2012, Statistics, with Ulrike Genschel)
  Dason Kurkievic (Fall 2011, Statistics, with Ulrike Genschel)
  Karsten Maurer (Fall 2011, Statistics)

M.Sc. completed
  Bryan Stanfill (Summer 2011, Statistics, with Ulrike Genschel)
  Xiang Wu (Fall 2010, Statistics)
  Yunhui Cao (Spring 2010, Statistics)
  David Rockoff (Spring 2010, Statistics)
  Adam Loy (Fall 2009, Statistics)
  Danielle Wrolstad (Summer 2009, Statistics)
  Rachel Graham (Spring 2008, Statistics)
  Dominik Birkmeier (Summer 2007) (Statistics)
  Aimin Yan (Summer 2007) (Statistics)
  Jie Zhu (Fall 2006) (co-major with Economics)
  Hong Bai (Fall 2006) (co-major with Economics)
  Junjie Sun (Spring 2006) (co-major with Economics)
  Suzanna Stevens (Fall 2005) (Statistics),
  Jeff Thostenson (Fall 2005) (Statistics)),
  Lifeng You (Spring 2004) (Statistics),
  Peter Hoekstra (Statistics; advisor: Ranjan Maitra),
  Lixia Diao (Statistics; advisor: Dianne Cook),

Aulia Hardjasamudra (Statistics; advisor: Dianne Cook)
Hao Yang (Statistics; advisor: Dianne Cook),

Ph.D. in progress
Mahbub Majumder (Spring 2012, Statistics, with Di Cook)
Adam Loy (Spring 2012, Statistics)
Marie Vendettuoli (Spring 2012, BCB, with Eve Wurtele and Di Cook)

Ph.D. in progress
Adam Loy (Spring 2013)
Mahbub Majumder (Spring 2013, co-advisor with Dianne Cook)
Marie Vendettuoli (Spring 2013, Bioinformatics and Computational Biology; co-advisor: Eve Wurtele),
Yihui Xie (Spring 2014?, co-advisor: Dianne Cook),
Niladri Roy Chowdhury (Spring 2014?, co-advisor: Dianne Cook),

Ph.D. completed
Hadley Wickham (Spring 2008, Statistics; co-advisor with Dianne Cook),
Ling Guo (Summer 2007, Bioinformatics and Computational Biology; advisors: Dan Ashlock & Patrick Schnable),
Ozlem Ilk (Statistics; advisors: Mike Daniels & Dianne Cook),
Eun-kyung Lee (Statistics; advisor: Dianne Cook)

Research Scholarship

(a) Publications
Refereed Publications:

Genschel U., Hofmann H. Kurkievic D.: A graphical user interface for accessing large databases. *Journal of Technical Innovations in Statistical Education*, under review.

Hofmann H., Cook D., Kielion C., Schloerke B., Hobbs J., Loy A. Mosley L., Rockoff D., Huang Y., Wrolstad D., Yin T.: Delayed, Canceled, on Time, Boarding Flying in the USA. *Journal of Computational and Graphical Statistics*, Vol. 20, No. 2, 287-290, 2011.

Wickham H., Cook D., Hofmann H., Buja A.: tourr: An R package for exploring multivariate data with projections. *Journal of Statistical Software*, vol. 40, no. 2, pp. 118, 2011.

Wickham H., Hofmann H.: Product Plots *IEEE Transactions on Visualization and Computer Graphics*, 2011.

Shedd-Wise KM, Alekel DL, Hofmann H, VanLoan MD: Three-year soy isoflavone intervention has moderate effects on pQCT bone measures in postmenopausal women. *Journal of Clinical Densitometry, Assess Skeletal Health*, 2011. DOI: 10.1016/j.jocd.2010.11.003.

Matvienko OA, Alekel DL, Bhupathiraju SN, Hofmann H, Ritland LM, Reddy MB, Van Loan MD, and Perry CD.: Androidal fat mass is the strongest and most consistent predictor of cardiometabolic risk in healthy postmenopausal women. *Cardiology Research and Practice*, Article ID 904878, doi:10.4061/2011/904878, 2011.

David Rockoff, Heike Hofmann: How good is your Eyeballing? *CHANCE*, vol 24 (2), 2011.

Marie Vendettuoli, Erin Doyle, Heike Hofmann: Clustering microarray data to determine normalization method. *Advances in Computational Biology*, Springer, pp. 145–153, 2011.

Hofmann-Sieber H., Wild J.,Fiedler N.,Tischer K., von Einem J., Osterrieder N., Hofmann H., Köstler J. and Wagner R.: Impact of ETIF Deletion on Safety and Immunogenicity of EHV-1 Vectored Vaccines. *Journal of Virology*, p. 11602–11613, 2010.

Wickham H., Cook D., Hofmann H., Buja A.: Graphical inference for infovis (best paper). *IEEE Transactions on Visualization and Computer Graphics*, **16**, pp. 973–979, 2010.

J. Hobbs, H. Wickham, H. Hofmann, and D. Cook: Glaciers melt as mountains warm: A graphical case study. *Computational Statistics*, Invited submission. Special issue for *ASA Statistical Computing and Graphics, Data Expo 2007*, 2010.

Buja A., Cook D., Hofmann H., Swayne D.F., Lawrence M., Lee E.K., Wickham H.: Statistical Inference for Exploratory Data Analysis and Model Diagnostics. *Philosophical Transactions of the Royal Society, A* (Invited), no 367, 4361–4383 2009.

Wickham H., Lawrence M., Cook D., Buja A., Hofmann H., Swayne D.: The plumbing of interactive graphics. *Computational Statistics*, May, 2008 (online).

Buja A., Swayne D.F., Littman M., Dean N., Hofmann H., Chen L.: Interactive Data Visualization with Multidimensional Scaling. *Journal of Computational and Graphical Statistics*, 17, 2, 444–472, 2008.

Yan A, Kloczkowski A, Hofmann H, Jernigan RL.: Prediction of side chain orientations in proteins by statistical machine learning methods. *Journal of biomolecular structure & dynamics*, 3, 275–288, 2007.

Hofmann H.: Interview with a Centennial Chart. *CHANCE*, 20 (3), pp. 26–35, 2007.

Cook D., Hofmann H., Nikolau B., Wurtele E., Lee Eun-kyung, Yang H.: Exploring gene expressions using plots. *Journal of Data Science*, 5(2), 2007, pp. 151-182.

Ahn J.S., Cook D., Hofmann H.: A Projection Pursuit Method on the multidimensional squared Contingency Table. *Computational Statistics*, Vol 18, pp. 605–626, 2003

Wurtele E.S., Dickerson J.D., Cook D., Hofmann H., Li J., Diao L.:MetNet: software to build and model the biogenetic lattice of Arabidopsis. *Comparative and Functional Genomics*. Vol 4, pp.239–245, 2003.

Hofmann H.: Constructing and reading mosaicplots. *Journal of Computational Statistics and Data Analysis*, Vol 43, No. 4, pp. 565-580, 2003.

Unwin A., Hofmann H., Wilhelm A.: Direct Manipulation Graphics for Data Mining. *International Journal of Image and Graphics*, Vol. 2, No. 1, pp. 49-65, 2002.

Hofmann H.: Generalised Odds Ratios for Visual Modelling. *Journal of Computational and Graphical Statistics*, 10, pp 628-640, 2002.

Hofmann H., Unwin A. Wilhelm A.: Data Mining and Statistics - Introduction. *Computational Statistics*, 16(3),pp. 317-321, 2001.

Hofmann H., Wilhelm A.: Visual Comparisons of Association Rules. *Computational Statistics*, 16(3), pp 399-416, 2001.

Wilhelm A., Hofmann H.: Graphics for Categorical Data and their Applications in Data Mining. In C. Provasi (Ed.), *Modelli Complessi e Metodi Computazionali Intensivi per la Stima e la Previsione*, pp. 51-56, 2001.

Hofmann H.: Exploring Categorical Data: Interactive Mosaic Plots. *Metrika*, 51(1), 11-26, 2000.

Hofmann H., Theus M.: Selection Sequences in MANET. *Computational Statistics*, 13(1), 77-87, 1998.

Unwin A., Hawkins G., Hofmann H., Siegl B.: Interactive Graphics for Data Sets with Missing Values - MANET. *Journal of Computational and Graphical Statistics*, 5(2), pp. 113-122, 1996.

Books:

Unwin A., Theus M., Hofmann H.: Graphics of Large Datasets. Springer, 2006.

Hofmann H.: Graphical Tools for the Exploration of Multivariate Categorical Data. BOD, 2001.

Book Chapters:

Hofmann H.: *Mosaic plots and their Variants.* in Handbook of Computational Statistics (Volume III) Data Visualization, 2008.

Hofmann H.: *How to Visualize a Million Categories.* in Graphics of Large Datasets, 2006.

Unwin A., Hofmann H.: *New Interactive Graphics Tools for Exploratory Analysis of Spatial Data.* Innovations in GID 5, ed Carver, 1997.

(b) **Refereed Conference Proceedings:**

Vendettuoli, M., Cook, D., Hofmann, H.: *qtpaintgui() An integration of Command Line and Graphical User Interface*, BioComp'10.

Hofmann H.: *Interactive biplots for visual modelling.* in Proceedings in Computational Statistics 16th Symposium held in Prague, Czech Republic, Antoch, Jaromir (Ed.), pp. 235–250, 2004.

Lee E-K, Cook D, Hofmann H, Wurtele ES, Kim D, Kim J, and An H.: *GENEGOBI : Visual data analysis tools for microarray data.* in Proceedings in Computational Statistics 16th Symposium held in Prague, Czech Republic, Antoch, Jaromir (Ed.), 2004.

Zhang Jing, Miller L. Cook D., Hardjasamudra A., Hofmann H.: *Densityplot Matrix Display for Large Distributed Data.* In Proc. of the IEEE International Conference on Data Mining 2003.

DiBenedetto D., Hofmann H.: *Mining with your Eyes. Thats Interactivity.* In Proc. of the Meeting of the Società Italiana di Statistica, 2003.

Hofmann H., Wilhelm A.: *Exploring association rules by interactive graphics.* In W. Gaul, G. Ritter (Eds.), Classification, Automation, and New Media, 181-188. Springer: Berlin, 2002.

Unwin A., Hofmann H., Bernt K.: *Multiple Association Rules Control.* In Proc. of the 5th European Conf. on Principles and Practice of Knowledge Discovery in Databases (PKDD'01), pp. 472–483, 2001.

Hofmann H., Siebes A., Wilhelm A.: *Visualising Association Rules with Interactive Mosaic Plots.* In Proc. of the 6th Int'l Conference of SigKDD, pp. 227-235, 2000.

Hofmann H.: *Graphical Stability of Data Analysing Software.* In R. Klar Opitz, O. (Ed.), Classification and Knowledge Organisation, (pp. 36-43). Freiburg: Springer, 1997.

Unrefereed Publications:

Loy A., Hofmann H.: *Monitoring Data Streams.* in JSM Proceedings, 2009.

Hofmann H., Cook D., Kostelnick C.: *Teaching Statistical Graphics: An Experience between Dusty Archives and Blogs.* in Statistical and Computing Graphics Newsletter 17 (2), 2007.

Gribov A., Hofmann H., Unwin A.: *About Glyphs and Small Multiples: Gauguin and the Expo.* in Statistical and Computing Graphics Newsletter 17 (2), 2007.

Yakhnenko O., Hofmann H.: *Exploring Parameters in Loglinear Models* in Proceedings of Joint Statistical Meetings (JSM), 2005, MN.

Hofmann H.: *Visualisation of Association Rules.* In Proc. of the Interface Symposium 2001.

Hofmann H., Wilhelm A.: *Validation of Association Rules by Interactive Mosaic Plots.* In J.G. Bethlehem and P.G.M. van der Heijden (eds.), *CompStat 2000 – Proceedings in Computational Statistics*, pp. 499-504, Physica-Verlag, Heidelberg, 2000.

Hofmann H.: *Visualisation in Data Mining - Screening Multivariate Categorical Data.* in Invited Papers of the 52nd Session of the International Statistical Institute, pp. 355-400, 1999.

Unwin A., Hofmann H.: *GUI and Command-line - Conflict or Synergy?* In K. Berk and M. Pourahmadi (Eds.) Computing Science and Statistics, Proceedings of the 31st Symposium on the Interface, 31, Chicago: Interface Foundation, 1999.

Hofmann H.: *Simpson on Board the Titanic? - Interactive Methods for dealing with Multivariate Categorical Data.* in Statistical and Computing Graphics Newsletter 9(2), 1999.

Hofmann H.: *Interactive Biplots.* in NTTS 98, 1 (pp. 127-136). Sorrento: Eurostat, 1998.

Theus M., Hofmann H., Wilhelm A.: *Selection Sequences - interactive analysis of massive data sets.* Computing Science and Statistics 29(1), (Scott, D.W. ed.) pp. 439-444, Interface Foundation of North America, Inc: Fairfax Station, VA, 1998.

Unwin A., Hofmann H.: *Can we see what isn't there? Exploring and keeping track of missings.* In ASA Proceedings - Section on Statistical Graphics, 1997.

Unwin A., Theus M., Hofmann H., Siegl B.: *MANET - Extensions to Interactive Statistical Graphics for Missing Values.* New Techniques and Technologies for Statistics II, IO-Press Amsterdam, pp. 247-259, 1997.

Encyclopedia Entries:

Hofmann H.: *Mosaic Plots* Encyclopedia of Measurement and Statistics, SAGE, Neil J. Salkind (ed.), 2006.

Hofmann H.: *Parallel Coordinate Plots* Encyclopedia of Measurement and Statistics, SAGE, Neil J. Salkind (ed.), 2006.

Hofmann H.: *Graphical Statistical Methods* Encyclopedia of Measurement and Statistics, SAGE, Neil J. Salkind (ed.), 2006.

Paper Submissions:

Emerson J., Green W., Schloerke B., Cook D., Hofmann H., Wickham H.: The Generalized Pairs Plot. Journal of Computational and Graphical Statistics, Submitted.

Newell, M., Cook, D., Hofmann, H. and Jannink, J.-L.: An Algorithm for Deciding the Number of Clusters and Validation using Simulated Data with Application to Exploring Crop Population Structure, Annals of Applied Statistics, submitted.

Wickham H., Hofmann H., Wickham C., Cook D.: Glyph-maps for Visually Exploring Temporal Patterns in Climate Data and Models. Environmetrics, Submitted.

In Preparation:

Hofmann H, Kafadar K., Wickham H.: Letter Value Boxplots, to be submitted to The American Statistician, planned submission date Oct 28 2011

Follett L., Hofmann H., Genschel U.: Effects of the BP Oil Spill: A graphical Exploration, invited submission to Computation Statistics, Nov 2011.

Hofmann H, Unwin A., Cook D.: Good Practices for Graphics in R, to be submitted to R Journal, planned submission date Dec 2011

Werbel J.D., Schwab A., Hofmann H.: Gender Diversity in the Portuguese Bank and Insurance Sector, to be submitted Fall 2011.

Loy A., Hofmann H.: Diagnostics for Hierarchical Models, to be submitted to Sage Publications, early 2012.

Stanfill, B., Genschel, U., Hofmann H. Point Estimation of the Central Direction of Random Rotations in SO(3), to be submitted early 2012.

Mahbub M., Cook D., Hofmann H. Visual Inference for Regression Models, to be submitted to JCGS early 2012.

Software

i. **Cranvas**,
interactive visualization in R.
Main developers: Yihui Xie, Hadley Wickham, Michael Lawrence, Heike Hofmann, Dianne Cook.
Available at https://github.com/ggobi/cranvas

ii. **Manet**,
main author since 1997, previous contributions by George Hawkins and Bernd Siegl.
Available at http://www.rosuda.de/manet

iii. **GGobi**,
basic implementation of area charts (histograms, bar charts)
Available at http://www.ggobi. org

iv. **R packages**:
- dbGUI (Dason Kurkievic) – Fall 2011
- HLMDiagnostics (Adam Loy)
- lvboxplots (Hadley Wickham)
- MergeGUI (Xiaoyue Cheng)
- MissingDataGUI (Xiaoyue Cheng)

Grants

i. External
NSF proposal :*Collaborative Research on Statistical Inference for Data Displays*, with Dianne Cook, Andreas Buja, Hadley Wickham, $189,974, funded Sep 2010 - August 2013
NIH proposal :*Advancing Drug Development from medicinal plants using transcriptomics and metabolomics*, Co-PI (out of about 10), PIs: Joseph Chappell (University of Kentucky), Sarah O'Connor, Dean Dellapenna, $3,027,575, funded from Sep 30 2009 - Aug 31 2010. My contribution: statistical analysis of plant material collected at Iowa State.
NSF proposal :*Statistical Graphics Research in Association with GGobi*, Co-PI with Dianne Cook (PI), $416,461, funded 2007 - 2012
NSF proposal 0416730:*Functional Genomics of the Biotin Metabolic Network of Arabidopsis*, Co-PI, $379,996.00, funded (09/01/04 - 08/31/06).
NSF proposal 050267: *Arabidopsis 2010: MetNet: Integrated Software for Arabidopsis Systems Biology Research*, Senior Personnel, $969,634, funded (09/01/05 - 08/31/07).

ii. Internal
LAS Strategic Initiatives Proposals, GE Health Data, $30,000 (with D. Cook), 2011, pending.
LAS Foreign Travel Grant, $860, 2008.
LASCAC COLL grant, *mysql Database for online storage of course material*, $4,000.
LAS Foreign Travel Grant, $513, 2005.

Invited Talks

Statistical Inference for Graphics
Feb 2012, Information Visualization, Visual Data Mining and Machine Learning, Dagstuhl Seminar 12081, Germany.

Statistics Course: Visual Communication
Feb 2012, Miami University, OH.

Visual Inference (Best of Interface)
Dec 2011, Joint Meeting of Taipei International Statistical Symposium and 7th Conference of the Asian Regional Section of the IASC, Taipei.

Interactive Statistical Graphics for Data Exploration
May 2011, Conference on Probability, Statistics, and Data Analysis, IISA, Raleigh, NC.

Main Direction for Rotation Matrices
April 2011, Augsburg University, Germany.

Inference for Graphical Displays
Oct 2010, Workshop on Extreme Scale Visual Analytics, Salt Lake City, UT.

Let the Data Figure!
June 2010, Interface Symposium, Seattle, WA.
January 2010, Antony Unwin's 60th Birthday, Augsburg, Germany.

Body Composition - Statistical Vantage Point
May 2010, NRWC Workshop, Ames, IA.

Graphical Exploration of Very Large Data
Oct 2009, Army Conference on Applied Statistics, Tempe. AZ.

Visual Assessment of Airline Carriers
May 2009, EURISBIS09, Sardinia, Italy.

Incorporating Interactive graphics into Metabolomics Data Pre-processing)
(with Dianne Cook, Michael Lawrence, Suh-yeon Choi, Eve Wurtele) March 2009, ENAR, San Antonio.

Visualizing Large Data
May 2008, Large Data Vis Conference, Bremen.

Visualization of Categorical Data
May 2008, Augsburg University.

Statistical Lessons learned from the Netflix Challenge (with ISU Statistics Team)
October 2007, Winona State University, Winona, MN.

Longitudinal Data in R (with Di Cook)
August 2007, useR! Conference, Ames, Iowa.

Scagnostics for Projection Pursuit
August 2007, Joint Statistical Meetings, Salt Lake City, UT.
Oct 2007, University of Iowa, Iowa City, MN.

Modeling Massive Data Sets: The Netflix Challenge from a Statistical Perspective (with Dan Nettleton)
May 2007, Spring Research Conference, Ames, Iowa.

Scagnostics for Projection Pursuit
Feb 2007, ENAR meeting, Atlanta, GA.

Variations of Mosaic plots
Aug. 2006, CSC Conference: Workshop on Data and Information Visualization 2006, Berlin, Germany.
Aug. 2006, Compstat 2006, Rome, Italy.

Boom and Bust of High-Tech Industry at the turn of the Millenium - Data Challenge
Oct. 2005, InfoVis, Minneapolis, MN (part of the award ceremony).

Interactive biplots for visual modelling
Aug. 2004, Compstat 2004, Prague, Czech Republic.

How to visualize a million bins
Aug. 2003, Joint Statistical Meeting, San Francisco.

How to visualize a million bins
June 2003, International Meeting of the Psychometric Society, Cagliari, Italy.

Graphics - an Ace up a Statistician's Sleeve
June 2003, WNAR President's Invited Address June 2003, Golden, Colorado.

Graphical Opportunities in Exploring Microarray Data
May. 2003, Toxicogenomics: Through the Eyes of Informatics, organized by the Virginia Bioinformatics Institute and NIEHS, Washington D.C.

How to visualize a million bins
Oct. 2002, 3rd Workshop of Data Visualisation, Rain am Lech, Germany.

How to visualize one million points
Dec. 2001, University of Augsburg, Germany.

Visualisation of Association Rules
June 2001, Interface Symposium, Santa Ana, CA.

Mosaics, Mosaics, and Mosaics
May 2001, 2nd Workshop of Data Visualisation, Washington D.C.

Do you know your feelings? - A statistical analysis of linguistic data
Nov. 2000, Int'l Symposium on Data Mining & Statistics, Augsburg, Germany (talk in German).

Generalised Odds Ratios for Visual Modelling
May 2001, AT&T Research Labs, Statistics Seminar, Florham Park, NJ.
April 2001, Iowa State University, IA.
Feb. 2001, University of Madison, WI.
Aug. 2000, Iowa State University, IA.

MANET - an interactive graphical system
Feb. 2000, Cambridge University, UK.
Aug. 1997, AT&T Research Labs, Florham Park, NJ.

Interactive Statistical Graphics
Oct. 2000, CWI Amsterdam, The Netherlands.

Visualisation in Data Mining - Screening Multivariate Categorical Data
Aug. 1999, ISI'99, Helsinki, Finland.

GUI and Command-line - Conflict or Synergy?
June 1999, Interface '99, Chicago.

Interactive Biplots
Oct. 1998, NTTS'98, New Techniques and Technologies for Statistics, Sorrent, Italy.

Mosaicplots in an interactive graphical system
June 1998, Yale University, New Haven.

Visualising and Working with Categorical Data
June 1998, Lucent Technologies, Chicago.
June 1998, Visual Insight, Chicago.

Can we see what is not there? Exploring and keeping track of missings
   Aug. 1997, Joint Statistical Meetings, Anaheim.

Refereed Conference Presentations:

Visual Modeling with Mosaic Plots
   May 2005, Annual meeting of the Interface, Saint Louis, MO.

How to visualize a million bins
   Aug 2003, Joint Statistical Meetings, San Francisco, CA.
   Oct. 2002, 3rd Workshop of Data Visualisation, Rain am Lech, Germany.

Visualizing Conditional Distributions
   Annual meeting of the German Society of Statistical Computing, Reisensburg, Germany, July
   2003;
   Annual meeting of the Interface, Salt Lake City, Utah, Mar 2003.

Visualizing Simple Association Models
   COMPSTAT meeting, Berlin, Germany, August 2002.

Visualizing Conditional Distributions
   Annual meeting of the Gesellschaft für Klassifikation (German Classification Society), Mannheim,
   Germany, July 2002.

Visualisation of Association Rules
   June 2001, Interface Symposium, Santa Ana, CA.

Visualisation in Data Mining - Screening Multivariate Categorical Data
   Aug. 1999, ISI'99, Helsinki, Finland.

Interactive Biplots
   Oct. 1998, NTTS'98, New Techniques and Technologies for Statistics, Sorrent, Italy.

Can we see what is not there? Exploring and keeping track of missings
   Aug. 1997, Joint Statistical Meetings, Anaheim, CA.

Contributed Talks (since Jan 2002)

Interactive Biplots for Visual Modeling
   Joint Statistical Meetings, Minneapolis, MN, August 2005.

Visualizing Effects of Loglinear Models (with O. Yakhnenko)
   Joint Statistical Meetings, Minneapolis, MN, August 2005.

Visualizing Conditional Distributions
   Annual meeting of the German Society of Statistical Computing, Reisensburg, Germany, July
   2003;
   Annual meeting of the Interface, Salt Lake City, Utah, Mar 2003.

Visualizing Simple Association Models
   COMPSTAT meeting, Berlin, Germany, August 2002.

Visualizing Conditional Distributions
   Annual meeting of the Gesellschaft für Klassifikation (German Classification Society), Mannheim,
   Germany, July 2002.

Explorative Analysis of Microarray Data
   Annual meeting of the German Society of Statistical Computing, Reisensburg, Germany, July
   2002.

Creative Activity

"Going to the Moviews: Bring your Popcorn and Enjoy the Show!", Poster, IEEE InfoVis 2007,
Sacramento, CA.

Creation & Distribution of four ASA sponsored posters on Statistical Graphics (with Dianne Cook and Martin Theus, Augsburg University)

Honors and awards

First Prize with Lendie Follett and Ulrike Genschel in the ASA Data Exposition for the Contribution "Deep Horizon Oil Spill", 2011

Best student paper *Visual Statistical Inference for Regression Parameters* in ASA Graphics Paper Competition (in advisory role with Dianne Cook), 2011

First Prize with Dianne Cook and the students from the Statistical Graphics working group in Design for America Challenge 2010.

Second Prize with Dianne Cook and students from the Statistical Graphics working group in the ASA Data Exposition for the Contribution "Delayed, Cancelled, On Time, Boarding, ... flying over the USA" 2009

Second Prize with Dianne Cook and Hadley Wickham in the ASA Data Exposition for the Contribution "Glaciers Melt as Mountains Warm" 2006

Early Excellence in Research/Artistic Creativity 2006, LAS College

First Prize with Dianne Cook, Hadley Wickham, Junjie Sun and Christian Röttger in the IEEE InfoVis Data Contest 2005 for the Contribution "Boom and Bust of Technology Companies at the Turn of the 21st Century"

Professional Practice

(a) Workshops & Conference Organization

- *Graphics in R*, Miami University, Feb 2012.
- SARMA/Ties workshop, *Visualization of Climate Data*, with H. Wickham and D. Cook, Reykjavik, Aug 14-18, 2011.
- Session Organizer of Topic Contributed Session, *Advances in Statistical Graphics*, JSM 2011.
- Session Chair, , JSM 2010.
- *Looking at Data* (with Dianne Cook, Hadley Wickham), Washington DC, July 2009.
- *Visualizing Data with R* (with Dianne Cook), Iowa State University, July 2009.
- Session Organizer of Invited Session, *Dealing with Large Data*, JSM 2008.
- CE course *Graphics of Large Datasets* with Antony Unwin taught as a full day short course at the Joint Statistical Meetings 2008 in Denver, CO.
- Member of the organizing committee of useR! 2007 conference, Ames, IA.
- CE course *Graphics of Large Datasets* with Antony Unwin taught as a full day short course at the Joint Statistical Meetings 2007 in Salt Lake City.
- Member of the program committee of the fourth International Conference on Coordinated & Multiple Views in Exploratory Visualization (CMV2006), July 4th, London, UK.
- Workshop for the ASA Alaska chapter (with Dianne Cook), *Visualizing Multivariate Data*, June 2003.
- Session Organizer, *Discrete Data*, JSM 2002.
- Member of the Organizing Committee: Third International Workshop on Data Visualization for large data sets and Data Mining, October 6 - 9, 2002, Augsburg, Germany.
- Member of the Organizing Committee: International Symposium on Data Mining and Statistics, November 20-21, 2000, University of Augsburg, Germany.
- CE Workshop *Visual Data Mining* at the Joint Statistical Meetings, Indianapolis 2000.

- CE Short Course *Graphical Methods for Categorical Data* (with Antony Unwin) at the Interface Meeting, Chicago 1999.

Service

(a) Committee Work (in the Statistics Department)

Fall 2011	Curriculum Committee
Fall 2011	Admissions Committee
Fall 2011	Library
Fall 2011	Student/Faculty Committee on Instruction
Spring 2002 - Spring 2011	Computation Advisory Committee (Chair: Fall 2009 - Spring 2011)
Fall 2008 - Fall 2011	Undergraduate Committee
Fall 2008 - Spring 2009	Diversity Committee
Spring 2008	Search Committee
Fall 2007	Search Committee
Fall 2005-Spring 2007	MS Exam Committee
Fall 2005	Social Committee
Fall 2003 - Spring 2005	Graduate Admission
Spring 2003	Search Committee
MS Exam question	May 2005, 2006, 2007, Jan 2006, 2007, 2008, 2009, 2010

(b) Statistical Society

- Judge of NSF IGERT Poster Competition 2011, May 15-16, (Evaluated and ranked 20 poster contributions).
- ASA Statistical Graphics Chair, JSM 2012.
- ASA Statistical Graphics Chair Elect, JSM 2011.
- ASA Statistical Graphics Program Chair, JSM 2010.

(c) Refereeing and Editing

Associate Editor for Journal of Computational and Graphical Statistics, 02/02 - 05/01.

Associate Editor for Computational Statistics, 02/10 - 04/10

Co-Editor of "Graphics for Large Datasets".

Guest Editor of the special issue on Data Mining and Statistics of the Journal of Computational Statistics, vol. 16 (3), 2001.

Referee for

Springer (2 book manuscripts),

Chapman & Hall (1 book manuscript),

Journal of Computational and Graphical Statistics (13 reviews),

The American Statistician (2 reviews)

Journal of Computational Statistics and Data Analysis (2 reviews),

Journal of Statistical Software (1 review),

Journal of Computational Statistics (2 reviews)

Journal of Statistics Education (1 review)

Knowledge and Information Systems - An International Journal (1 review)

Conference contribution for Information Visualization '05 (1 review)

Conference contribution for Information Visualization '09 (1 review)

Conference contribution for Information Visualization '11(2 reviews)