

THE UNIVERSITY OF BRITISH COLUMBIA  
*Curriculum Vitae for Faculty Members*

Date: April 27, 2019

Initials: TM

1. SURNAME: Munzner FIRST NAME: Tamara  
MIDDLE NAME: Macushla
2. DEPARTMENT/SCHOOL: Computer Science
3. FACULTY: Science
4. PRESENT RANK: Professor SINCE: August 2012
5. POST-SECONDARY EDUCATION

(a) Degrees

University or Institution	Degree	Subject Area	Dates
Stanford University	Ph.D.	Computer Science	Sep 1995 - Jun 2000
Stanford University	B.S.	Computer Science	Sep 1986 - Jun 1991

Ph.D. Dissertation: Interactive Visualization of Large Graphs and Networks

Ph.D. Supervisor: Pat Hanrahan

6. EMPLOYMENT RECORD

(a) Prior to coming to UBC

University, Company or Organization	Rank or Title	Dates
Compaq Systems Research Center	Research Scientist	9/00-5/02
Microsoft Research	Summer Intern	6/98-9/98
Silicon Graphics, Inc.	Part-Time Consultant and Summer Intern	3/96-6/98
The Geometry Center	Senior Technical Staff	6/92-5/95
The Geometry Center	Apprentice	6/91-6/92
Geometry Supercomputer Project	Summer Intern	6/90-9/90
ETA Systems	Summer and Part-Time Intern	6/86-9/88

Compaq SRC was formerly DEC SRC, before Digital was bought by Compaq. The Geometry Center was the short name of the NSF-funded National Science and Technology Research Center for Computation and Visualization of Geometric Structures, which existed from 1991 to 1998. It was located at the University of Minnesota. It grew out of the smaller Geometry Supercomputer Project, also funded by the NSF. ETA Systems was a supercomputer spinoff from Control Data Corporation.

(b) At UBC

Rank or Title	Dates
Associate Head for Research and Faculty Affairs	Jul 2014 - Jul 2017
Professor	Aug 2012 - present
Associate Professor	Aug 2007 - Aug 2012
Assistant Professor	July 2002 - Aug 2007

(c) Date of granting of tenure at UBC: August 2007

## 7. LEAVES OF ABSENCE

### (a) *From UBC*

Type of Leave	Dates
Sabbatical	July 2018 – Jun 2019
Sabbatical	July 2013 – Jun 2014
Sabbatical	July 2008 – Jun 2009
Medical	Jan 2008 – Jun 2008

### (b) *Visiting Researcher*

University, Company or Organization	Position	Dates
Université de Bordeaux I	Visiting Researcher	Jun 2004 – Jul 2004
Technische Universität Berlin	Visiting Researcher	May 1995 – July 1995

## 8. TEACHING

### (a) *Areas of special interest and accomplishments*

I put considerable effort into updating the undergraduate computer graphics course 314/414 from 2003 to 2005. The current version is based not only on previous offerings at UBC, but also by integrating curricular approaches from several different strong graphics programs. Although the course was renumbered from 414 to 314 in 2004, its content was mostly unaffected by this change. I continue to refine the course each year that I teach it.

In 2003 I introduced a new graduate course in information visualization. At that time, less than one dozen offerings of such a course had ever existed at any university, including the one that I co-taught at Stanford the previous year. I have continued to refine my course in each offering, posting the full curriculum including lectures on a course web page that has had a clear influence on subsequent courses by others. My graduate course was renumbered from 533C (a topics course number) to 547 (a dedicated course number) in 2014, but the content did not change. I now teach the course using the book that I authored, starting with book drafts in 2011 and continuing with the final version from 2014 onwards. In the past few years my course has consistently been the second-largest graduate course in the department, and has several informal auditors in addition to the official registrants listed below. It regularly attracts many students from a wide range of other departments, including electrical and computer engineering, civil engineering, and the iSchool.

In 2015 I developed a 1.5 credit module (6 weeks, 3 hrs/weeks) for journalism (520M) which uses a subset of the foundational material from my standard graduate course, but with exercises in the Tableau tool tailored for non-programmer journalist students without a background in data analysis. In 2016 I co-taught this course with an adjunct who is a working journalist. In 2017 I mostly handed the course off to her, but did contribute with 3 guest lectures.

In 2016/2017 I developed 2 new 1-credit module (4 weeks, 3 hrs/week) for the new Masters of Data Science program (531 & 532), which also use a subset of the foundational material from my graduate course, but with exercises in the R and python languages tailored to dovetail nicely with the data science curriculum. I co-taught this course with a teaching fellow from statistics. In 2017 I taught only 1 module (532), with substantial modification to the curriculum based on the experience of the first round.

### (b) *Courses Taught at UBC*

Number	Title
CPSC 111	Introduction to Programming

*(table continues on the next page...)*

Number	Title
CPSC 213	Introduction to Systems
CPSC 314	Introduction to Computer Graphics
CPSC 414	Introduction to Computer Graphics
CPSC 533C	Special Topics in Graphics: Visualization
CPSC 547	Information Visualization
JOURN 520M	Visualization for Journalists
DSCI 531	Data Visualization I
DSCI 532	Data Visualization II

Session	Course			Class	Hours Taught Per Week			
	Number	Units	Weeks	Size	Lectures	Tutorials	Labs	Office Hrs
Spring 2018	532	1	4	43	3			1
Fall 2017	547	3	13	17	3			1
Spring 2017	547	3	13	18	3			1
Spring 2017	532	1	4	21	3			1
Fall 2016	531	1	4	22	3			1
Fall 2016	520M	1.5	6	15	3			1
Spring 2016	314	3	13	82	3			2
Fall 2015	520M	1.5	6	14	3			1
Fall 2015	547	3	13	26	3			1
Fall 2014	547	3	13	19	3			1
Spring 2013	314	3	13	66	3			2
Fall 2013	213	3	13	71	3			2
Spring 2012	213	3	13	113	3			2
Fall 2011	533	3	13	12	3			1
Fall 2010	213	3	13	77	3			1
Spring 2010	111	3	13	112	3			1
Spring 2010	314	3	13	64	3			1
Fall 2009	533C	3	13	16	3			1
Spring 2008	314	3	13	-*	3			2
Fall 2007	533C	3	13	6	3			1
Spring 2007	314	3	13	37	3			2
Fall 2006	533C	3	13	8	3			1
Spring 2006	111	3	13	76	3			2
Fall 2005	533C	3	13	20	3			1
Summer 2005	314	3	13	20	3			2
Spring 2005	314	3	13	78	3			2
Fall 2004	533C	3	13	5	3			1
Spring 2004	533C	3	13	21	3			1
Fall 2003	414	3	13	90	3			2
Spring 2003	533C	3	13	13	3			1

(c) *Students Supervised and/or Cosupervised at UBC*

The start year indicates the year I began to supervise a student, not the year the student was enrolled in the program.

**Postdocs Supervised**

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\*Spring 2008 314 course covered by colleagues because of medical leave.

Student Name	Inst.	Year		Principal	CoSupervisor
		Start	Finish	Supervisor	
Michelle Borkin	UBC	2014	2015	Tamara Munzner	
Stephen Ingram	UBC	2013	2014	Tamara Munzner	
Michael Sedlmair	UBC	2010	2012	Tamara Munzner	
Miriah Meyer	Harvard	2008	2011	Hanspeter Pfister (Harvard)*	Tamara Munzner*
Melanie Tory	UBC	2004	2006	Tamara Munzner*	Kelly Booth (UBC)*

Borkin is now an assistant professor at Northeastern. Ingram is now at the startup Coho Data. Sedlmair is now a junior professor at Vienna. Meyer is now an assistant professor at Utah. Tory was an associate professor at Victoria and is now a research scientist at Tableau Research.

### PhD Students Supervised

Student Name	Inst.	Year		Principal	CoSupervisor
		Start	Finish	Supervisor	
Michael Oppermann	UBC	2017	exp. 2021	Tamara Munzner	
Zipeng Liu	UBC	2016	exp. 2019	Tamara Munzner	
Anamaria Crisan	UBC	2015	exp. 2018	Tamara Munzner*	Jennifer Gardy (UBC)*
Georges Hattab	Bielefeld	2016	2018	Tim Nattkemper (Biel.)	Tamara Munzner
Matt Brehmer	UBC	2011	2016	Tamara Munzner	Joanna McGrenere (UBC)
Stephen Ingram	UBC	2007	2013	Tamara Munzner	
Peter McLachlan	UBC	2006	left 2009	Tamara Munzner	
James Slack	UBC	2005	left 2008	Tamara Munzner	
Heidi Lam	UBC	2004	2008	Tamara Munzner	
Dan Archambault	UBC	2003	2008	Tamara Munzner*	David Auber (Bordeaux)*

Ingram was on leave from the PhD program from fall 2008 to winter 2009, and went on to a postdoc with me. McLachlan took a leave from the PhD program to co-found a startup, Mobify, which is doing so well that he chose to continue leading it rather than return to graduate school. Slack left to pursue other interests. Lam was at Google and is now at Tableau Research. Archambault is now a lecturer at Swansea (equivalent to an assistant professor position in North America).

### MSc Students Supervised

Student Name	Inst.	Year		Principal	CoSupervisor
		Start	Finish	Supervisor	
Steve Kasica	UBC	2018	2020	Tamara Munzner	
Kimberly Romagnino	Dextras-UBC	2016	2018	Tamara Munzner	
Wenqiang Dong	(Dylan) UBC	2016	2017	Tamara Munzner	
Johanna Fulda	LMU/UBC	2014	2015	Tamara Munzner	Andreas Butz (LMU)
Jessica Dawson	UBC	2011	2013	Tamara Munzner*	Joanna McGrenere (UBC)*
Joel Ferstay	UBC	2012	2013	Cydney Nielsen (BC Cancer)	Tamara Munzner
Stephen Ingram	UBC	2006	2007	Tamara Munzner	Marc Olano (UMBC)
Aaron Barsky	UBC	2006	2008	Tamara Munzner	
Peter McLachlan	UBC	2005	2006	Tamara Munzner	
Qiang Kong	UBC	2004	2006	Tamara Munzner*	Raymond Ng (UBC)*
Adam Bodnar	UBC	2004	2006	Tamara Munzner*	Joanna McGrenere (UBC)*
Dmitry Nekrasovski	UBC	2004	2005	Joanna McGrenere (UBC)*	Tamara Munzner*
Dale Beerman	Virginia	2003	2004	Greg Humphreys (Virginia)	Tamara Munzner
Kristian Hildebrand	Weimar/ UBC	2003	2005	Bernd Froehlich (Weimar)	Tamara Munzner
Matt Williams	UBC	2003	2004	Tamara Munzner	
James Slack	UBC	2003	2005	Tamara Munzner	

Fulda was a visiting student from Munich. Dawson went on to teaching in UBC CS as a lecturer and then the UBC medical school program.

\*Symmetric co-supervision: both faculty members acted as principal supervisors.

Ferstay went on to AeroInfo, the company that partially funded his thesis work. Ingram went on to the UBC PhD program. Barsky went BC Cancer and then to Hemisphere Games. McLachlan went on to the UBC PhD program and then co-founded Mobify. Kong went to Electronic Arts. Bodnar went to WorkBrain. Nekrasovski went to OpenText. Beerman went to StudyBlue. Hildebrand was a visiting student at UBC from Sep 2003 to Aug 2004; he went on to the PhD program at TU Berlin. Williams rejoined the Vancouver public school system as a math and computer science teacher.

## Undergraduate Students Supervised

Student Name	Inst.	Program	Year		Principal	
			Start	Finish	Supervisor	CoSupervisor
Shannah Fisher	UBC	Dir. studies	2018	2019	Tamara Munzner	
Parmida Esmailpour	UBC	Dir. studies	2016	2016	Tamara Munzner	
Jessica Dawson	UBC	Dir. studies	2009	2011	Joanna McGrenere (UBC)	Tamara Munzner
Anton Zoubarev	UBC	Dir. studies	2009	2009	Tamara Munzner	
Alex Vostrov	UBC	Ugrad thesis	2005	2006	Tamara Munzner	Ken Elwood (UBC Civil)
David Westrom	UBC	Ugrad thesis	2004	2005	Tamara Munzner	
Ciarán Llachlan Leavitt	UBC	Ugrad	2003	2008	Tamara Munzner	
Janek Klawe	UBC	Ugrad thesis	2003	2004	Tamara Munzner	
Keith Lau	UBC	Ugrad thesis	2003	2004	Tamara Munzner	Ron Rensink (UBC)
Jordan Lee	UBC	Ugrad co-op	2003	2004	Tamara Munzner	
Dragana Radulovic	UBC	Ugrad co-op	2003	2004	Tamara Munzner	Raymond Ng (UBC)
Jeffrey Zhihui Zhang	UBC	Ugrad co-op	2003	2004	Tamara Munzner	

Fisher continued at UBC. Esmailpour went on to UBC PoliSci grad school. Dawson went on to the UBC MSc program. Zoubarev works in a UBC bioinformatics research group. Leavitt joined Slant Six and then Aristocrat. Westrom joined Electronic Arts and then Zynga. Klawe went on to the Princeton PhD program. Lau earned a master's from Cornell and then joined at Bloomberg. Lee joined Electronic Arts. Radulovic joined Joule and then Tata Systems. Zhang joined Business Objects.

## Graduate Supervisory Committees

For PhD students and MSc students outside of computer science, on committee. For MSc CS students, second reader for thesis. In both cases, start date reflects my own involvement with their work, not when the student began their program.

Student Name	Program	Year		Principal	
		Start	Finish	Supervisor	
Dereck Toker	PhD	2015	cont	Cristina Conati (UBC CS)	
Dirk Haupt	MSc	2016	2017	Tim Murphy (UBC Neuro.)	
Chihua Ma	PhD	2016	2018	Angus Forbes (Univ Illinois Chicago)	
Enamul Hoque	PhD	2014	2017	Giuseppe Carenini (UBC CS)	
Hasti Seifi	PhD	2014	2017	Karon MacLean (UBC CS)	
Rebecca McKnight	MSc	2015	2015	Nick Harvey (UBC CS)	
Antoine Poinard	MSc	2015	2016	Joanna McGrenere (UBC CS)	
Nayantara Duttachoudhury	MSc	2015	2016	Rachael Pottinger (UBC CS)	
Niels Hanson	PhD	2013	2015	Steve Hallam (UBC MicroBio)	
Dereck Toker	MSc	2012	2013	Cristina Conati (UBC CS)	
Anna Flagg	MSc	2012	2012	Karon MacLean (UBC CS)	
Will Chao	MSc	2011	2012	Michiel van de Panne (UBC CS)	
Michael Welsman-Dinelle	MSc	2010	2011	Michiel van de Panne (UBC CS)	
Chaoying Chiu	PhD	2008	2011	Alan Russell (UBC Civil)	
Alan McConchie	MSc	2008	2009	Brian Klinkenberg (UBC Geog)	
Dave Ternes	MSc	2008	2008	Karon Maclean (UBC CS)	
Michael Huggett	PhD	2006	2007	Edie Rasmussen (UBC SLAIS)	
Brian de Alwis	PhD	2004	2008	Gail Murphy (UBC CS)	
Mik Kersten	PhD	2004	2007	Gail Murphy (UBC CS)	
Jonathan Sillito	PhD	2004	2007	Kris de Volder (UBC CS)	
Stephane Durocher	PhD	2002	2006	David Kirkpatrick (UBC CS)	
Chen Yang	MSc	2006	2006	Michiel van de Panne (UBC CS)	

(d) *Continuing Education Activities*

**Mini-Courses on Information Visualization**

- One-day course at Department of Industry, Innovation and Science, Economic and Analytical Services Division, Canberra Australia, June 2017.\*
- Third-day data visualization masterclass at VIZBI/VIVID, Sydney Australia, June 2017.\*
- One-day course at ACT, Iowa City IL, July 2016.\*
- Third-day course at Prospects in Theoretical Physics 2017, Princeton NJ, July 2016.\*
- Co-taught one-day data visualization masterclass at VIVID, Sydney Australia, June 2015.\*
- Two one-day courses at Sanger / European Bioinformatics Institutes, Cambridge UK, June 2014.\*
- Four-lecture course at TECS Week, Pune India, January 2008.\*
- Three-morning course at University of Bordeaux I, France, June 2004.\*

**9. SCHOLARLY AND PROFESSIONAL ACTIVITIES**

(a) *Areas of special interest and accomplishments*

(b) *Research or equivalent grants (indicate under COMP whether grants were obtained competitively (C) or non-competitively (NC))*

Agency	Title	Comp	\$/Year	Year(s)	PI (& Co-PIs in italics)
Adobe	(gift)	N	\$20,000	2018-2019	Tamara Munzner
UBC VPRI Cluster	Designing for People	C	\$200,000 n/a%	2019	Karon MacLean & 19 others
Cisco/ Campus as Living Lab	Locational Service Analytics: Machine Learning and Data Visualization for CMX Data Applications	C	\$43,000 100%	2	James Tansey
NSERC ENGAGE	Ocupado: Visual Analytics for Occupancy Applications	C	\$25,000 100%	1	Tamara Munzner
UBC VPRI Cluster	Designing for People	C	\$200,000 n/a%	2018	Karon MacLean & 15 others
NSERC CREATE	Designing for People: Crossdisciplinary Program in Interactive Computational Technology	C	\$1,650,000 8%	6: 2017-23	Karon MacLean & 10 others
UBC VPRI Cluster	Designing for People	C	\$100,000 n/a%	2017	Karon MacLean & 9 others
MITACS Accelerate	Statistical and Machine Learning with Applications to a Hybrid Recommender System for Retail Data	C	\$133,000 9%	2017	Sathish Gopalakrishnan
Mobify/ MITACS	Advancing Visualization for Mobile E-Commerce Clickstream Data	C	\$30,000 100%	1: 2016-17	Tamara Munzner
NSERC CREATE	ECOSCOPE: Ecosystem Services, Commercialization, and Entrepreneurship	C	\$1,650,000 0%	6: 2015-21	Steven Hallam & 10 others

(table continues on the next page...)

\*Expenses paid.

Agency	Title	Comp	\$/Year	Year(s)	PI (& Co-PIs in italics)
NSERC Discovery	Accelerating the Improvement of Visualization Design Methodology	C	\$46,000	5: 2014-19	Tamara Munzner
Pulse/ MITACS	Multidimensional Energy Consumption Analysis in Large Organizations: An Information Visualization Design Study	C	\$15,000	2013	Tamara Munzner
VIVA/ MITACS	Tackling the Challenge of Graph Comparison in Genomics	C	\$30,000	2013	Tamara Munzner & <i>C. Nielsen</i>
NSERC Discovery	Building and Evaluating Information Visualization Systems	C	\$25,000	5: 2008-12 (+1 yr. ext.)	Tamara Munzner
NSERC Strategic	Visually Enhanced Exploration of High-Dimensional Data	C	\$163,216	3: 2007-10 (+2 yr. ext.)	Torsten Moeller & <i>T. Munzner, N. de Freitas, M. Tory</i>
AT&T Labs	LiveRAC on Daytona	NC	\$25,313	2009	Tamara Munzner
Google	Session Viewer: A Tool to Visualize and Analyze Search Session Data	NC	\$48,820	2007	Tamara Munzner
AT&T Labs	Visualization of Large Network Oriented Datasets	NC	\$50,520	2008	Tamara Munzner
			\$47,810	2007	
			\$39,000	2006	
			100%		
NSERC Discovery	Scalable Information Visualization	C	\$21,000	5: 2003-07	Tamara Munzner
Agilent Labs	Location Constrained Graph Layout Algorithms	NC	\$29,000	2007	Tamara Munzner
Agilent Labs	Information Visualization Evaluation	NC	\$36,000	2005	Tamara Munzner
			100%		
GEOIDE NCE	CIRCUITS: Collaborative Interdisciplinary Research on Communities Using Information Technology for Sustainability	C	\$124,500	2: 2005-06	John Robinson & <i>13 others</i>
NSF ITR subcontract	Exploring the Tree of Life	C	\$65,000	2003	Tamara Munzner
			\$73,476	2004	
			100%		
IRIS NCE	Information Visualization for Data Mining	C	\$35,000	2003	Tamara Munzner
NSERC RTI	Displays of Disparate Resolution and Size	C	\$88,332	2003	Tamara Munzner & <i>K. MacLean, J. McGrenere, M. van de Panne</i>
			33%		
GEOIDE NCE	GeoCognito: Connecting People with Ideas and Ideas with Place	C	\$75,000	2004	John Robinson & <i>8 others</i>
			\$75,000	2003	
			\$12,500	2002	
			20%		
UBC	Startup Funds	NC	\$60,000	2002	Tamara Munzner
			100%		

(c) *Keynotes*

*Information Visualization Meets Biology: Models and Methods for Collaboration*  
VIZBI 2017, Sydney Australia, 6/17.\*

*Visualization and Journalism: Four Vignettes*

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\*Expenses paid.

Computation + Journalism Symposium 2016, Stanford CA, 10/16.\*

*Visualization Analysis & Design*

Information Plus Conference (InfoPlus) 2016, Vancouver BC, 6/16.

IEEE Symposium on Pacific Visualization (PacificVis) 2016, Taipei Taiwan, 5/16.\*

*Visualization Analysis & Design for Biology*

IEEE Symposium on Biological Visualization (BioVis) 2014, Boston MA, 7/14.\*

*Graph Drawing Through the Lens of a Framework for Analyzing Visualization Methods*

Graph Drawing Conference (GD) 2013, Bordeaux France, 9/13.\*

*Dimensionality Reduction From Several Angles*

Workshop on Visual Analytics for Multidimensional Projections (VAMP) 2013, Leipzig Germany, 6/13.\*

*Visualization Principles*

Workshop on Visualizing Biological Data (VizBi) 2011, Boston MA, 3/11.\*

*(d) Invited Presentations (Non-Conference)*

*Entry Points to Visualization: Different Methods for Different Problems*

Viz@UBC Lecture Series, Vancouver BC, 3/19

*Ocupado: Visual Analytics for Occupancy Applications*

Cisco, Toronto ON, 6/18

*Data Visualization Pitfalls to Avoid*

Monash University, Caulfield Australia, 6/17

Monash University, Clayton Australia, 6/17\*

*Data Visualization Pitfalls to Avoid*

CBR Arts Meets Science, Vancouver BC, 3/17

*Visualization Design Methods*

Design@Large Series, UCSD Design Lab, San Diego CA, 1/17

*Visualization Analysis & Design*

UBC STAT 545 (Guest Lecture), Vancouver BC, 10/17

Bedford Lab, Fred Hutch Cancer Research Center, Seattle WA, 7/17

NASA Goddard Information Science and Technology Colloquium, Greenbelt MD, 12/16\*

UBC STAT 545 (Guest Lecture), Vancouver BC, 10/16

University of Illinois at Chicago Distinguished Lecture, Chicago IL, 4/15\*

Tableau Software, Seattle WA, 2/15\*

Microsoft Research, Seattle WA, 2/15

City University London, London UK, 2/15\*

*Dimensionality Reduction From Several Angles*

UCSD Data Visualization (remote Guest Lecture), 2/17

UBC Okanagan, Kelowna BC, 8/16\*

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\*Expenses paid.

UCSD Data Visualization (remote Guest Lecture), 2/16  
University of Sydney, Sydney Australia, 6/15  
Johannes Kepler University, Linz Austria, 5/14  
Distinguished Lecture, UNC Charlotte, Charlotte NC, 4/14\*  
SCI Distinguished Lecture, University of Utah, Salt Lake City UT, 2/13\*  
FODAVA Distinguished Lecture, Georgia Tech, Atlanta GA, 12/12\*

*Visualization Analysis & Design for Business Intelligence*  
Disney Research, Glendale CA, 7/15\*

*Visualization Analysis & Design for Genomics*  
Centre for Heart Lung Innovation, St. Paul's Hospital, Vancouver BC, 7/15

*Visualization Analysis & Design for Biology*  
UBC CS 314 Computer Graphics (Guest Lecture), Vancouver BC, 10/14.

*Variant View: Visualizing Sequence Variants in their Gene Context*  
Oxford University, Oxford UK, 7/14

*Data Visualization in Genomics and In-Car Network Engineering*  
City University London, London UK, 7/14

*A Duo of Visualization Design Studies*  
University of Vienna, Vienna Austria, 5/14\*

*A Trio of Visualization Design Studies*  
Northwestern University, Chicago IL, 4/14\*

*Visualization Principles*  
Twitter, San Francisco CA, 6/12  
Exploratorium, San Francisco CA, 6/12\*

*Visualization and Biology: Fertile Ground for Collaboration*  
Technical University of Eindhoven, Eindhoven Netherlands, 6/09  
Institute for Innovative Computing, Harvard University, Boston MA, 2/09  
Harvard Medical School, Harvard University, Boston MA, 2/09  
Broad Institute, Boston MA, 2/09\*

*Frameworks/Models*  
Harvard CS 171, Visualization (Guest Lecture), Boston MA, 2/09

*Scalable Visual Comparison of Biological Trees and Sequences*  
University of Maryland College Park, College Park MD, 5/06\*  
Distinguished Lecture, University of Maryland Baltimore County, Baltimore MD, 5/06\*  
Indiana University, Bloomington IN, 2/06\*  
Stanford Computer Systems Lab Colloquium, Stanford CA, 5/04

*15 Views of a Node-Link Graph: An InfoVis Portfolio*  
Google, Mountain View CA, 6/06  
Agilent Labs, Santa Clara CA, 6/06  
National Institutes of Health, Bethesda MD, 5/06

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\*Expenses paid.

FOO (Friends of O'Reilly) Camp, Sebastopol CA, 8/05  
Information Esthetics Lecture Series One, New York NY, 7/05\*

*Information Visualization at UBC*

IBM TJ Watson Research, Hawthorne NY, 7/05

*Information Visualization with Accordion Drawing*

AT&T Research, Florham Park NJ, 7/05

*TreeJuxtaposer: Scalable Tree Comparison using Focus+Context with Guaranteed Visibility*  
CAIDA/SDSC, San Diego CA, 8/03

*Interactive Information Visualization*

SFU Cmp 775, Scientific Visualization (Guest Lecture), Burnaby BC, 11/04

UBC COGS 300 (Guest Lecture), Vancouver BC, 10/04

UBC CPSC 349 Honours Seminar (Guest Lecture), Vancouver BC, 10/04

SFU Cmp 878, Scientific Visualization (Guest Lecture), Burnaby BC, 10/03

UBC CPSC 349 Honours Seminar (Guest Lecture), Vancouver BC, 9/03

Microsoft Research, Redmond WA, 7/03

UBC CPSC 414 Intro Graphics (Guest Lecture), Vancouver BC, 3/03

UBC CPSC 349 Honours Seminar (Guest Lecture), Vancouver BC, 10/02

*Interactive Visualization of Large Trees and Graphs*

University of Bordeaux, Bordeaux France, 12/02

University of Calgary, Calgary AB, 9/02

University of British Columbia, Vancouver BC, 4/02\*

UC Santa Cruz, Santa Cruz CA, 4/02\*

University of Minnesota, Minneapolis MN, 4/02\*

UC Davis, Davis CA, 4/02\*

University of Utah, Salt Lake City UT, 3/02\*

Georgia Tech, Atlanta GA, 3/02\*

*Visual Structural Comparison Between Evolutionary Trees*

New York Academy of Sciences, New York NY, 2/02\*

*Interactive Visualization of Large Graphs and Networks*

UT Austin, Austin TX, 3/01

UC Berkeley, Berkeley CA, 10/00

CWI, Amsterdam Netherlands, 7/00

Philips Design, Eindhoven Netherlands, 7/00

Graz University of Technology, Graz Austria, 7/00

Compaq SRC, Palo Alto CA, 5/00

Lucent/Bell Labs, Naperville IL, 4/00

*Fast Layout and Drawing of Large Directed Graphs Using Spanning Trees in 3D Hyperbolic Space*

CAIDA, San Diego CA, 11/98

HP Labs, Palo Alto CA, 11/98

Bell Labs, Murray Hill NJ, 2/98

AT&T Research, Florham Park NJ, 2/98

*H3: Laying Out Large Directed Graphs in 3D Hyperbolic Space*

Alexa, San Francisco CA, 1/98

AT&T Research, Florham Park NJ, 9/97

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\*Expenses paid.

UC Santa Cruz, Santa Cruz CA, 6/97

*Visualizing the Web in 3D Hyperbolic Space*

SRI, Menlo Park CA, 4/98

MSRI, Berkeley CA, 12/96

BayCHI, Palo Alto CA, 11/96

*Visualizing the Global Topology of the MBone*

MSRI, Berkeley CA, 12/96

Interval Research, Palo Alto CA, 12/96

*The Making of Outside In and The Shape of Space*

University of Bielefeld, Bielefeld Germany, 7/95

University of Bonn, Bonn Germany, 7/95

*Integrating 3D Visualization with the World Wide Web*

Apple, Sunnyvale CA, 2/96

University of Bielefeld, Bielefeld Germany, 7/95

University of Bonn, Bonn Germany, 7/95

ZIB, Berlin Germany, 6/95

*Exploring Science through Video*

*3D Visualization in Science*

Spelman College, Atlanta GA, 2/95\*

*Visualizing the Invisible*

Atlanta College of Art, Atlanta GA, 2/95

*Mathematical Visualization Using Geomview*

Spelman College, Atlanta GA, 2/95\*

Swarthmore-Bryn Mawr Joint Visualization Project, Swarthmore PA, 6/94

Gustavus Adolphus College, St. Peter MN, 11/93

St. John's College, Collegeville MN, 11/93

(e) *Invited Conference/Workshop Presentations*

*Characterization of Information Visualization Systems*

Conf. on Quantification in Visual Computing, Stuttgart Germany, 10/18\*

*Some Challenges of Color*

THINK Conference 2017, Santa Cruz CA 11/17

*Data Visualization as a Driver for Visual Cognition Research*

2017 Workshop on Object Perception, Attention, and Memory (OPAM), Vancouver BC, 11/17

*Handson: Visualization*

2017 IRE Cross Border Reporting Workshop , Vancouver BC, 5/17

*Visualization Analysis & Design*

Consortium for Computing Sciences in Colleges (CCSC), Portland OR, 10/16\*

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\*Expenses paid.

Graphics Interface 2016, Victoria BC, 6/16\*

Dagstuhl Seminar: Bridging Information Visualization with Machine Learning, Wadern Germany, 3/15

*I sense a great disturbance in the Force: The replication crisis in psychology & its possible repercussions for the future of vis evaluation; or, What's making me lose sleep lately*

Panel: On the Future of Evaluation and BELIV, BELIV 2016, Baltimore MD, 10/16

*Scales and Methods of Engagement*

VA Tool Users and Universities Panel, CANVAS 2014 Workshop, Vancouver BC, 8/14

*Variant View: Visualizing Sequence Variants in their Gene Context*

BioIT World Conference, Boston MA, 4/14\*

*Visualization for Hackers: Why It's Tricky, and Where to Start*

Hackers On Planet Earth (HOPE) X, New York NY, 7/14

*Dimensionality Reduction From Three Angles*

SIAM Data Mining Workshop on Exploratory Data Analysis, Philadelphia PA, 4/14

*Visualization: Why It's Tricky, Where To Start*

Programming Knowledge Representation Workshop, Bellairs Barbados, 2/14

*Visualization Principles*

Cytoscape Symposium on Network Visualization, San Francisco CA, 12/12

*Applying Information Visualization Principles to Biological Network Displays*

Human Vision and Electronic Imaging (HVEI) 2011, San Francisco CA, 1/11

*MulteeSum: A Tool for Comparative Spatial and Temporal Gene Expression Data*

THINK Conference 2010, Santa Cruz CA, 11/10

*Visualization and Biology: Fertile Ground for Collaboration*

bigDATA Workshop, University of British Columbia, 5/10

*Visualization Process and Collaboration*

Dagstuhl Scientific Visualization Workshop, Wadern Germany, 6/09

*Biology is Destiny: Of Graphs and Genes*

Asilomar Microcomputer Workshop 2009, Monterey CA, 4/09

*Big Data, Visualization, and Systems Biology*

THINK Conference 22, Santa Cruz CA, 11/08

*Research Cycles, Collaboration, and Visualization*

VIEW Workshop, Leiden Netherlands, 6/07 \*

*When To Walk Away: Questions To Ask In Infovis Projects*

Dagstuhl Seminar on Information Visualization, Wadern Germany, 5/07

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\*Expenses paid.

*Scalable Drawing of Trees and Graphs*

Joint Statistical Meeting (Invited Session), Seattle WA, 8/06

*LiveRAC: Live Reorderable Accordion Drawing*

AT&T Labs University Symposium, Florham Park NJ, 8/06

*TopoLayout: Layout of Graphs by Topological Feature*

THINK Conference 21, Santa Cruz CA, 11/05

*Scalable Visual Comparison of Biological Trees and Sequences*

PaRISTIC, Bordeaux France, 11/05\*

*Steerable, Progressive Multidimensional Scaling*

Asilomar Microcomputer Workshop 2005, Monterey CA, 4/05

*Scalable Visualization with Accordion Drawing*

Vancouver Studies in Cognitive Science 2005, Vancouver BC, 2/05

*State of the Field: InfoVis*

NSF/NIH Visualization Research Challenges Fall Workshop, Bethesda MD, 9/04.

*Scalable Visual Comparison of Biological Trees and Sequences*

Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration, Banff AB, 5/04.

Asilomar Microcomputer Workshop, Monterey CA, 4/04

*Human Perception Tidbits*

THINK Conference 19, Fresno CA, 11/03

*Visual Comparison of Large Evolutionary Trees.*

Quintessence: The Clumpy Matter of Art, Science and Math Visualization, Banff AL, 9/02

*Information Visualization for Systems People*

Usenix 2002, Monterey CA, 6/02

*Workshop Participant*

National Science Foundation Assembling the Tree of Life Workshop II, Davis CA, 10/00

*Video Topology*

Asilomar Microcomputer Workshop, Asilomar CA, 4/00

*Interactive Navigation of Large Graphs and Networks.*

Workshop on Data Visualization, Memphis TN, 6/99

*Interactive Navigation of Large Networks.*

Asilomar Microcomputer Workshop, Asilomar CA, 4/99

*Guaranteed Frame Rate Drawing for Interactive Navigation of Large Graphs.*

DIMACS Workshop on External Memory Algorithms and/or Visualization, Rutgers NJ, 5/98

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\*Expenses paid.

*H3: Laying Out Large Directed Graphs in 3D Hyperbolic Space*  
THINK Conference 13, Santa Rosa CA, 11/97

*Information Visualization with VRML*  
World Movers, San Francisco CA, 2/97

*Visualizing the Global Topology of the MBone*  
Workshop on Software and Mathematical Visualization, Princeton NJ, 6/96

*Dimension, Space, Information Visualization and the Web*  
Imagina 96, Monte Carlo, Monaco, 2/96\*

*Integrating 3D Visualization with the World Wide Web*  
International Workshop on Visualization and Mathematics,  
Technical University of Berlin (SFB288), Berlin Germany, 6/95

*Visualization Videos* talk  
*Mathematical Visualization Using Geomview* demo  
Fourth MSI Workshop on Computational Geometry, Cornell University, Ithaca NY, 10/94

*Mathematical Visualization Using Geomview.*  
Regional Geometry Institute, Smith College, Amherst MA, 7/93

*Introduction to Geomview.*  
Second MSRI Conference on Geometric Visualization,  
Mathematical Sciences Research Institute, Berkeley CA, 10/92 (with Mark Phillips and Stuart Levy)

(f) *Peer-Reviewed Tutorials*

*Visualization Analysis & Design*  
Course: Visualization Analysis & Design  
VIS 17, Phoenix AZ, 10/17\*  
VIS 16, Baltimore MD, 10/16\*  
VIS 15, Chicago IL, 10/15\*  
VIS 14, Paris France, 11/14\*

*Visual Encoding*  
*Navigation through Space*  
Course: Seeing, Hearing, and Touching: Putting It All Together  
SIGGRAPH 04, Los Angeles CA, 8/04\*

*Applications in Information Visualization*  
Course: Multimodal Interface Design  
SIGGRAPH 03, San Antonio TX, 07/03\*

*Survey of Visualization Toolkits*  
Course: Design and Application of Object-Oriented 3D Visualization Systems  
SIGGRAPH 97, Los Angeles CA, 8/97\*

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\*Expenses paid.

*Visualizing Mathematics through Interactive Software*  
*Visualizing Mathematics through Video*  
Course: Visualizing Mathematics  
SIGGRAPH 95, Los Angeles CA, 8/95\*

*Basic Issues on Computer-aided Math Visualization*  
Two-day course, with Mark Phillips and Stuart Levy  
AMS/MAA Joint Summer Meeting, Minneapolis MN, 8/94

(g) *Peer-Reviewed Panels*

*Panel: Reflection on Reflection in Design Studies, Phoenix AZ 10/17*  
VIS 17, Phoenix AZ, 10/17

*Panel: Pathways for Theoretical Advances in Visualization (won Best Panel award)*  
VIS 16, Baltimore MD, 10/16

*Teaching Across the Researcher-Practitioner Gap*  
Vis, The Next Generation: Teaching Across the Researcher-Practitioner Gap  
VIS 15, Chicago IN, 10/15

*Evaluation, When and How*  
Panel: How Much Evaluation is Enough? VIS 13, Atlanta GA, 10/13

*Grassroots Reproducibility: Just Do It!*  
Panel: Reproducible Visualization Research: How Do We Get There? VisWeek 12, Seattle WA, 10/12

*UBC Grad Course in InfoVis*  
Panel: Perspectives on Teaching Data Visualization (won Best Panel award)  
VisWeek 10, Salt Lake City UT, 10/10

*Outward and Inward Grand Challenges*  
Panel: Grand Challenges in Information Visualization (won Best Panel award)  
InfoVis 08, Columbus OH, 10/08

*Mathematics For Visualization versus Visualization Of Mathematics*  
Panel: The Mathematical Concepts Beneath Contemporary Visualization  
Visualization 07, Sacramento CA, 10/07

*A Panorama of Publication Pitfalls*  
Panel: Publishing Your Visualization Research  
Visualization 06 Doctoral Colloquium, Baltimore MD, 10/06  
Panel: How to Get Your Paper Published  
VIEW Workshop, Leiden Netherlands, 6/07  
SFU (Guest Lecture), Burnaby BC, 10/07

*Visualization Careers: Academia*  
Panel: Visualization Careers  
Visualization 06 Doctoral Colloquium, Baltimore MD, 10/06

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\*Expenses paid.

*Information and Scientific Visualization: Separate but Equal*

Panel: Information and Scientific Visualization: Separate but Equal or Happy Together At Last  
Visualization 03, Seattle WA, 10/03

*In Search Of: Prescriptive Advice for Visualization*

Panel: Visualization Needs More Visual Design!  
Visualization 99, San Francisco CA, 10/99

*Panel: Mathematical Visualization: Standing at the Crossroads*

Moderator and co-organizer (**won Best Panel award**)  
Visualization 96, San Francisco CA, 11/96

*3D Graphics through the Internet*

Panel: 3D Graphics through the Internet: A Shootout  
SIGGRAPH 95, Los Angeles CA, 8/95

*Visualization through the World Wide Web with Geomview, Cyberview, W3Kit, and WebOOGL*

Panel: Visualization and the Web  
World Wide Web Fall 94, Chicago IL, 10/94

(h) *Conference Participation (Organizer, Keynote Speaker, etc.)*

**Steering/Executive Committees**

- **VIS Restructuring Committee**, VIS, 2016–current  
Committee struck by the VEC to investigate whether VAST, InfoVis, and SciVis should merge, and whether to handle associated events differently.
- **Executive Committee (VEC) Chair**, VIS, 2012–2017  
VIS is the major umbrella event in our area with the three major conferences VAST, InfoVis, and SciVis and additional symposia and workshops including BioVis, LDAV, and VizSec.
- **Steering Committee**, InfoVis, 2010–2014, 2015–2017  
(IEEE Conference on Information Visualization)
- **Steering Committee Chair**, InfoVis, 2014–2015
- **Executive Committee Member**, VisWeek, 2011–2012
- **Steering Committee**, BioVis (IEEE Symposium on Biological Data Visualization), 2012–2013  
I was a founding member of the SC for this new venue.

**Papers Chair**

- **Papers Co-Chair**, EuroVis 2010 (Eurographics/IEEE VGTC Symposium on Visualization), Bordeaux
- **Papers Co-Chair**, EuroVis 2009, Berlin
- **Papers Co-Chair**, InfoVis 2004 (IEEE Symposium on Information Visualization), Austin
- **Papers Co-Chair**, InfoVis 2003, Seattle

**Organizer**

- **Best Papers Committee**, PacificVis 2016
- **Co-Organizer**, Dagstuhl Seminar: Bridging Information Visualization with Machine Learning, 2015, Germany
- **Best Papers Chair**, InfoVis 2006
- **Best Papers Committee**, InfoVis 2005
- **Massive Data Thrust Co-Organizer**, Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration Workshop, 2004, Banff

- **Posters Co-Chair**, InfoVis 2002
- **Posters Chair**, InfoVis 2001 I began the posters program as the inaugural chair
- **Co-Organizer**, AMW 2002 (Asilomar Microcomputer Workshop)
- **Co-Organizer**, AMW 2001

Conference participation in the form of keynote addresses, peer-reviewed panels, and peer-reviewed tutorials is listed in Section 9.

**10. SERVICE TO THE UNIVERSITY**

(a) *Memberships on committees, including offices held and dates*

**Departmental Committees, Chair**

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2017-2018	Space
2014-2017	Faculty Affairs
2014-2016	Faculty Recruiting
2011-2013	Peer Teaching Evaluation
2004-2008	FoWCS: Focus On Women in Computer Science

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**Departmental Committees, Member**

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2017-2018	Communications
2016-2017	Faculty Recruiting
2012-2013	Faculty Affairs
2010-2011	Graduate Recruiting
2010-2011	Space
2009-2010	Faculty Affairs
2009-2010	Faculty Recruiting
2008-2010	Promotion & Tenure Mini-Committee
2007-2008	Faculty Recruiting
2005-2008	Brown Bag Facilitator
2003	Administrative Manager ad hoc Search
2002-2006	Curriculum

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**ICICS Committees, Member**

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2003-2004	Distinguished Lecture Selection
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(b) *Other service, including dates*

**Departmental Outreach Talks**

- January 2012
- February 2006
- March 2005

**Chair, Doctoral Proposal Defense**

- Aug 2014, Mikhail Bessmeltsev

**Examiner, University Doctoral Exam**

- August 2017, Jimin Joy
- July 2015, Dutch Meyer

- July 2011, Thomas Hentrich

### Chair, University Doctoral Exam

- April 2010, Victor F. Sanchez Silva
- August 2009, Alex Wang

## 11. SERVICE TO THE COMMUNITY

### (a) Memberships on scholarly committees, including offices held and dates

- 2014–2017, IEEE VGTC Executive Committee Member
- 2004–2008, IEEE VGTC (Visualization and Graphics Technical Committee) Executive Committee Member At Large

I list additional committee memberships associated with the organization of conferences or workshops in Section 9(h), and those associated with the reviewing of papers in Section 11(d).

### (b) Editorships (list journal and dates)

#### Book Series Editorships

- Editor 2014–now: AK Peters Visualization Series, CRC Press.

#### Guest Editorships

- Eurographics Computer Graphics Forum 29:3, June 2010 (special issue, Proc. EuroVis 10). (with Guy Melançon and Daniel Weiskopf)
- Eurographics Computer Graphics Forum 28:3, June 2009 (special issue, Proc. EuroVis 09). (with Hans-Christian Hege and Ingrid Hotz)
- Information Visualization, Palgrave. 4:2, Summer 2005. (with Matt Ward)
- IEEE TVCG (Trans. Visualization and Computer Graphics) 11:2, July/August 2005. (with Matt Ward)
- Information Visualization, Palgrave. 3:2, Summer 2004. (with Stephen North)
- IEEE TVCG (Trans. Visualization and Computer Graphics) 10:4, July/August 2004. (with Stephen North)
- IEEE CG&A (Computer Graphics and Applications), Special Issue on Information Visualization, Jan/Feb 2002.

### (c) Program Committees

- InfoVis: IEEE Symposium on Information Visualization 2000–2004, 2006–2007, 2009–2010, 2012–2014, 2016–2017
- EuroVis: Eurographics/IEEE VGTC Symposium on Visualization 2005–2008, 2011–2014, 2017
- BELIV: BEyond time and errors: novel evaluation methods for Information Visualization 2010, 2012, 2014, 2016
- Graph Drawing: 2015
- EuroVis Short Papers: 2015
- BioVis: IEEE Symp. on Biological Visualization 2014–2015
- ISMB: Intl. Conf. on Intelligent Systems in Molecular Biology 2012
- Vis: IEEE Visualization 2003, 2009
- MediVis: Conference on Medical/Biomedical Visualization 2007
- I3D: Symposium on Interactive 3D Graphics 2005
- GI: Graphics Interface 2003–2004
- ISMA: Internet Statistics and Metrics Analysis - Network Visualization 1999
- DIMACS Workshop on External Memory Algorithms and Visualization 1998
- VRML: Virtual Reality Modelling Language Symposium 1997
- VisMath: Visualization and Mathematics 1997

(d) *Reviewer (journal, agency, etc., including dates)*

### Funding agencies

- MITACS: Mathematics of Information Technology and Complex Systems 2009-10, 2018
- NSERC: Natural Sciences and Engineering Research Council 2003-2005, 2007, 2010-11, 2013
- FWF: Austrian Science Fund 2006, 2010, 2013, 2015-2017
- NWO: Netherlands Organisation for Scientific Research, 2011
- ERC: European Research Council 2010
- US NSF: United States National Science Foundation 2007, 2009
- FQRNT: Fonds Québécois de la Recherche sur la Nature et les Technologies 2009
- UK EPSRC: United Kingdom Engineering and Physical Sciences Research Council 2007
- UC-MICRO: Univ. California Microelectronics Innovation and Computer Research Opportunities 2006

### Journals

- TVCG: IEEE Transactions on Visualization and Computer Graphics 2002-2014, 2016-2018
- JGAA: Journal of Graph Algorithms and Applications, 2016
- IVS: Information Visualization Journal 2002, 2004, 2005, 2008-2010, 2014
- F1000: F1000 Research 2014
- CG: Computers&Graphics 2010, 2013
- Neurocomputing, 2013
- PLoS ONE: Public Library of Science ONE 2011-2012
- IJCM: International Journal of Computer Mathematics 2011-2012
- Computer: IEEE Computer 2011-12
- Bioinformatics: BMC Bioinformatics 2005, 2008, 2011
- CG&A: IEEE Computer Graphics and Applications 1996-1997, 2003-2005, 2007, 2009, 2011
- EE: Ecology and Evolution 2011
- IJHCS: International Journal of Human-Computer Studies 2009-2010
- CGF: Computer Graphics Forum 2010
- TOG: IEEE Transactions on Graphics 2009
- ACM Computing Surveys 2004, 2006-2007
- CACM: Communications of the ACM 2007
- ToCHI: IEEE Transactions on Computer Human Interaction 2006
- AMM: American Mathematical Monthly 2007
- TIR: Transactions on Internet Research 2006
- FM: Field Methods 2006
- TAP: IEEE Transactions on Applied Perception 2003

### Conferences

- SIGCHI Papers 2005-2007, 2009-2018
- SciVis: IEEE Conf. Scientific Visualization 2017
- SIGGRAPH Papers 1999-2001, 2004-2007, 2010-2011
- BioVis Contest Judge, 2011
- InfoVis: IEEE Conf. Information Visualization 2011
- UIST: User Interface Software and Technologies 1999, 2001, 2006, 2010
- Vis: IEEE Visualization 1996, 2005-2007, 2010
- SIGGRAPH Asia Papers 2009-2010
- VAST: IEEE Conf. Visual Analytics Science and Technology 2006-2007, 2009-2010
- Eurographics 2003, 2007, 2009
- WABI: Workshop on Algorithms in Bioinformatics 2009

- SOCG: ACM Symposium on Computational Geometry 2009
- SIGGRAPH Sketches 2006-2007
- VMLS: Visualization in Medicine and Life Sciences 2006
- SIGGRAPH Courses 2002-2006
- InfoVis: IEEE Symp. Information Visualization 1997-2000, 2005
- NPAR: Non-Photorealistic Animation and Rendering Symposium 2004
- VDA: Visual Data Analysis 2003
- SIGKDD: Knowledge Discovery and Data Mining 2003
- I3D: ACM Symposium on Interactive 3D Graphics 2000
- VisSym: Joint Eurographics/IEEE Symposium on Visualization 2000
- VRML: Virtual Reality Modelling Language Symposium 1998
- SCG Video: Symposium on Computational Geometry (video proceedings) 1996

### Publishers

- Morgan Kaufmann books 2009-2010
- AK Peters books 2006-2007, 2009
- Springer-Verlag books 2005

(e) *External examiner (indicate university and dates)*

Student Name	Year	Institution	Country	Supervisor	Examined
Sarah Goodwin	2014	City University London	UK	Jason Dykes	In person
Michael Sedlmair	2010	LMU Munich	Germany	Andreas Butz	By Skype
Danny Holten	2009	TU Eindhoven	Holland	Jarke J. van Wijk	In person
*	2007	*	Australia	*	By report
Jérôme Thièvre	2006	INA / Univ. de Montpellier	France	Mountaz Hascoët	In person
François Boutin	2005	Université de Montpellier	France	Guy Melançon	In person
Fabien Jourdan	2004	Université de Montpellier	France	Guy Melançon	In person
David Auber	2002	Université de Bordeaux I	France	Maylis Deleste	In person

\* Identifying information elided in keeping with institution's confidentiality policy.

(f) *Consultant (indicate organization and dates)*

- Lytix, 2010-2012

(g) *Other service to the community*

### Advisory Boards and Site Visits

- Data Literacy LLC Advisory Board, 2019–now
- National Resource for Network Biology External Advisory Council, 2011–now. Site visits May 2011 San Diego, Dec 2012 San Francisco, Jul 2014 Boston, Jul 2018 Chicago.
- Microsoft–INRIA Joint Research Center Site visit June 2010 Paris France.

## 12. AWARDS AND DISTINCTIONS

(a) *Awards for Scholarship (indicate name of award, awarding organizations and date)*

- UBC Killam Research Prize 2019
- Best Paper Awards, Honorable Mention: IEEE InfoVis 2009, 2012, 2017
- Best Panel Awards: IEEE VIS/Visualization 1996, 2008, 2010, 2016

- IEEE VGTC Visualization Technical Achievement Award 2015
- Best Paper Awards, Honorable Mention (2nd Best): EuroVis 2009
- InfoVis Contest, Overall First Place Winner: IEEE InfoVis 2003
- Microsoft Research PhD Fellowship 1998-2000
- National Science Foundation Graduate Research Fellowship (USA) 1995-1998

### 13. OTHER RELEVANT INFORMATION (Maximum One Page)

#### Publication Strategy

My research is primarily published in visualization venues. The strongest conferences have at least as much impact as the top journals as a means of disseminating research results in this area. All of the top-tier conferences now publish their proceedings as special issues of journals, with a stringent two-phase peer review process and acceptance rates around 25% - 30%.

- **TVCG** (IEEE Transactions Visualization and Computer Graphics) is the top journal for visualization broadly.
- **IVS** (Information Visualization Journal, Palgrave) is the a journal for infovis specifically.
- **InfoVis** (IEEE Conference on Information Visualization) is without doubt the top venue. It was formally a symposium from its founding in 1995 to 2006, and became the primary venue in the area almost immediately. The proceedings have been published as a special issue of TVCG since 2006, with acceptance rates under 25%; prior to that, a small set of best papers was published in TVCG and IVS.
- **EuroVis** (Eurographics/IEEE VGTC Symposium on Visualization) is the second strongest venue. The proceedings is published as a special issue of Computer Graphics Forum. The review process is similar to InfoVis, with acceptance rates around 30% in recent years.
- **VAST** (IEEE Conference on Visual Analytics Science and Technology) is the main venue for visual analytics, a closely related research area. In its first four years from 2006-2009 it was a symposium with acceptance rates ranging from 43% to 38%; in 2010 it switched to conference status and the acceptance rate is currently around 25%.
- **CHI** (ACM Conference on Human Factors in Computing Systems) is the top conference in the related field of human-computer interaction, and publishes several infovis papers each year that have an interaction or evaluation focus. Acceptance rates are in the 15-25% range.

Occasionally a domain scientist collaborator includes my students and/or me as authors on papers published in their own literature, indicating that they consider the visualization system a critical part of their scientific work. I count these instances as a strong sign of success.

### 14. REFEREED PUBLICATIONS

The standard authorship order is that students and postdocs are listed first and faculty last, except in unusual circumstances. Within each group, the order is determined by the level of contribution. Names of students or postdocs that I supervised are in bold. My h-index was 45 as of April 2019. Citation counts given are from Google Scholar for all works with 100 or more citations as of March 2019.

(a) *Journals*

J44: Segmentifier: Interactive Refinement of Clickstream Data. **Kimberly Dextras-Romagnino** and Tamara Munzner. *Computer Graphics Forum (Proc. EuroVis 2019)*, to appear, 2019.

J43: Aggregated Dendrograms for Visual Comparison Between Many Phylogenetic Trees. **Zipeng Liu**, Shing Hei Zhan, and Tamara Munzner. *IEEE Trans. Visualization and Computer Graphics*, to appear, 2019.

J42: A systematic method for surveying data visualizations and a resulting genomic epidemiology visualization typology: GEViT. **Anamaria Crisan**, Jennifer L. Gardy, Tamara Munzner. *Bioinformatics*, bty832, to appear, 2019.

J41: Adjutant: an R-based tool to support topic discovery for systematic and literature reviews. **Anamaria Crisan**, Jennifer L. Gardy, Tamara Munzner. *Bioinformatics Application Note* 35(6):1070-1072, 2019.

J40: A Novel Methodology for Characterizing Cell Subpopulations in Automated Time-lapse Microscopy. **Georges Hattab**, Veit Wiesmann, Anke Becker, Tamara Munzner, and Tim W. Nattkemper. *Frontiers in in Bioengineering and Biotechnology* 28;6:17, 2018.

J39: Evidence-based design and evaluation of a whole genome sequencing clinical report for the reference microbiology laboratory. **Anamaria Crisan**, Geoff McKee, Tamara Munzner, Jennifer L. Gardy. *PeerJ* 6:e4218, 2018.

J38: Bridging From Goals to Tasks with Design Study Analysis Reports. Heidi Lam, Melanie Tory, and Tamara Munzner. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 2017)* 24(1):435–445, 2018. **Honorable Mention for Best Paper Award.**

J37: Timelines Revisited: A Design Space and Considerations for Expressive Storytelling. **Matthew Brehmer**, Benjamin Bach, Bongshin Lee, Nathalie Henry Riche, and Tamara Munzner. *IEEE Transactions on Visualization and Computer Graphics*, 23(9):2151 - 2164, 2017.

J36: Matches, Mismatches, and Methods: Multiple-View Workflows for Energy Portfolio Analysis. **Matthew Brehmer**, Jocelyn Ng, Kevin Tate, and Tamara Munzner. *IEEE Trans. Visualization and Computer Graphics (Proc. IEEE InfoVis 2015)* 22(1):449–458, 2016.

J35: TimeLineCurator: Interactive Authoring of Visual Timelines from Unstructured Text. **Johanna Fulda**, **Matthew Brehmer**, and Tamara Munzner. *IEEE Trans. Visualization and Computer Graphics (Proc. IEEE InfoVis 2015)* 22(1):300–309, 2016.

J34: B. Renoust, G. Melançon, T. Munzner. Detangler: Visual Analytics for Multiplex Networks. *Computer Graphics Forum (Proc. EuroVis 2015)* 34(3):321–330, 2015.

J33: **Jessica Dawson**, Tamara Munzner, and Joanna McGrenere. A Search Set Model of Path Tracing in Graphs. *Information Visualization*, 14(4):308338, 2015.

J32: **Matthew Brehmer**, **Stephen Ingram**, Jonathan Stray, and Tamara Munzner. Overview: The Design, Adoption, and Analysis of a Visual Document Mining Tool For Investigative Journalists. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 2014)*, 20(12):2271-2280, 2014.

J31: **Stephen Ingram** and Tamara Munzner. Dimensionality Reduction for Documents with Nearest Neighbor Queries. *Neurocomputing (Special Issue for Workshop on Visual Analytics using Multidimensional Projections (VAMP) held at EuroVis 2013)*, Volume 150 Part B, p 557-569, 2015.

J30: **Miriah Meyer**, **Michael Sedlmair**, and Tamara Munzner. The Nested Blocks and Guidelines Model. *Information Visualization*, 14(3) 2015. [30% new material beyond C22]

J29. **Michael Sedlmair**, Tamara Munzner, and Melanie Tory. Empirical Guidance on Scatterplot and Dimension Reduction Technique Choices. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 2013)*, 19(12): 2634-2643, 2013.

J28. **Matthew Brehmer** and Tamara Munzner. A Multi-Level Typology of Abstract Visualization Tasks. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 2013)*, 19(12): 2376-2385, 2013. (305 cites)

J27. **Joel A. Ferstay**, Cydney B. Nielsen, and Tamara Munzner. Variant View: Visualizing Sequence Variants in their Gene Context. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 2013)*, 19(12): 2546-2555, 2013.

J26. **Michael Sedlmair**, **Miriah Meyer**, and Tamara Munzner. Design Study Methodology: Reflections from the Trenches and the Stacks. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 2012)*, 18(12):2431-2440, 2012. **Honorable Mention for Best Paper Award.** (390 cites)

J25. **Michael Sedlmair**, Annika Frank, Tamara Munzner, and Andreas Butz. ReEx: Visualization for Actively Changing Overlay Network Specifications. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 2012)*, 18(12):2729-2738, 2012.

J24. **Michael Sedlmair**, Andrada Tatu, Tamara Munzner, and Melanie Tory. A Taxonomy of Visual Cluster Separation Factors. *Computer Graphics Forum (Proc. EuroVis 2012)*, 31(3):1335-1344, 2012.

J23. Maryam Booshehrian, Torsten Möller, Randall M. Peterman, and Tamara Munzner. Vismon: Facilitating Analysis of Trade-Offs, Uncertainty, and Sensitivity In Fisheries Management Decision Making. *Computer Graphics Forum (Proc. EuroVis 2012)*, 31(3):1235-1244, 2012. **Runner Up for Best Paper Award (Second Best Paper).**

J22. **Miriah Meyer**, Tamara Munzner, Angela DePace and Hanspeter Pfister. MulteeSum: A Tool for Comparative Temporal Gene Expression and Spatial Data. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 2010)* 16(6):908-917, 2010.

J21. **Daniel Archambault**, Tamara Munzner, and David Auber. Tugging Graphs Faster: Efficiently Modifying Path-Preserving Hierarchies for Browsing Paths. *IEEE Trans. Visualization and Computer Graphics* 17(3):276-289, 2011. [30% new material beyond C18], **invited as a best paper from IEEE PacificVis 2010**.

J20. **Miriah Meyer**, Bang Wong, Tamara Munzner, Mark Styczynski and Hanspeter Pfister. Pathline: A Tool for Comparative Functional Genomics. *Computer Graphics Forum (Proc. EuroVis 2010)*, 29(3):1043-1052, 2010.

J19. Tamara Munzner. A Nested Model for Visualization Design and Validation. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 09)*, 15(6):921-928, 2009. (552 cites)

J18. **Miriah Meyer**, Tamara Munzner and Hanspeter Pfister. MizBee: A Multiscale Synteny Browser. *IEEE Trans. Visualization and Computer Graphics (Proc. InfoVis 09)*, 15(6):897-904, 2009. **Honorable Mention for Best Paper Award.** (139 cites)

J17. **Stephen Ingram**, Tamara Munzner, and Marc Olano. Glimmer: Multilevel MDS on the GPU. *IEEE Trans. Visualization and Computer Graphics*, 15(2):249-261, Mar/Apr 2009. (167 cites)

J16. David J Lynn, Geoffrey L Winsor, Calvin Chan, Nicolas Richard, Matthew R Laird, **Aaron Barsky**, Jennifer L Gardy, Fiona M Roche, Timothy H W Chan, Naisha Shah, Raymond Lo, Misbah Naseer, Jaimmie Que, Melissa Yau, Michael Acab, Dan Tulpan, Matthew D Whiteside, Avinash Chikatamarla, Bernadette Mah, Tamara Munzner, Karsten Hokamp, Robert E W Hancock, and Fiona S L Brinkman. InnateDB: facilitating systems-level analyses of the mammalian innate immune response. *Molecular Systems Biology* 4:218 2008. (314 cites)

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## 15. NON-REFEREED PUBLICATIONS

### (a) Conference Proceedings: Invited Papers

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### (b) Theses

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N14. **Michael Sedlmair**, **Matt Brehmer**, **Stephen Ingram**, and Tamara Munzner. Dimensionality Reduction in the Wild: Gaps and Guidance. UBC Computer Science Technical Report TR-2012-03, June 2012.

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## 16. BOOKS

### (a) Authored

B3. Tamara Munzner. *Visualization Analysis and Design*. AK Peters Visualization Series. CRC Press, 2014. (404 pages) (611 cites)

B2. **Heidi Lam** and Tamara Munzner. *A Guide to Visual Multi-Level Interface Design From Synthesis of Empirical Study Evidence*. Synthesis Lectures on Visualization Series, Lecture 1, Morgan Claypool, November 2010. (117 page monograph)

B1. Chris Johnson, Robert Moorhead, Tamara Munzner, Hanspeter Pfister, Penny Rheingans, and Terry S. Yoo. NIH-NSF Visualization Research Challenges Report. IEEE Computer Society Press, 2006, ISBN 0-7695-2733-7 (40 pages) (191 cites)

### (b) Edited

E2. *Proceedings of the 2004 IEEE Symposium on Information Visualization (InfoVis)*, Tamara Munzner and Matt Ward, eds.

E1. *Proceedings of the 2003 IEEE Symposium on Information Visualization (InfoVis)*, Tamara Munzner and Stephen North, eds.

### (c) Chapters

D3. Tamara Munzner, **Aaron Barsky**, **Matt Williams**. Reflections on QuestVis: A Visualization System for an Environmental Sustainability Model. *Scientific Visualization: Interactions, Features, Metaphors*. Dagstuhl Follow-Ups 2, 2011, Chapter 17, p 240–259.

D2. Tamara Munzner. Visualization. Chapter 27, p 675-707, of *Fundamentals of Graphics, Third Edition*. by Peter Shirley and Steve Marschner, with additional contributions by Michael Ashikhmin, Michael Gleicher, Naty Hoffman, Garrett Johnson, Tamara Munzner, Erik Reinhard, Kelvin Sung, William B. Thompson, Peter Willemsen, Brian Wyvill. AK Peters, 2009.

D1. Tamara Munzner. Process and Pitfalls in Writing Information Visualization Research Papers. Chapter in *Information Visualization: Human-Centered Issues and Perspectives*. Andreas Kerren, John T. Stasko, Jean-Daniel Fekete, Chris North, eds. Springer LNCS Volume 4950, 2008, pages 134–153. (102 cites)

## 17. PATENTS

## 18. SPECIAL COPYRIGHTS

Outside In was shown in excerpt at the SIGGRAPH 94 Electronic Theater and won prizes at Nicograph, Prix Ars Electronica, Prix Pixel Imagina, and the London Effects and Animation Festival. The Shape of Space was shown in excerpt at the SIGGRAPH 95 Electronic Theater and Prix Pixel Imagina.

V3. Tamara Munzner and Delle Maxwell. The Shape of Space [video, 11 minutes]. Producer: The Geometry Center. Key Curriculum Press, 2000.

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V1. Silvio Levy, Delle Maxwell, and Tamara Munzner. Outside In [video, 22 minutes]. Producer: The Geometry Center. AK Peters, 1994.

## 19. OTHER WORKS

(a) *Software released publicly arising from my research*

S26. **gevit.net**. (with Anamaria Crisan; 2018) Visualization tool to browse genomic epidemiology typology. Open source.

S25. **Adjutant**. (with Anamaria Crisan; 2018) Visualization tool to support systematic literature surveys. Open source.

S24. **PaperQuest**. (with Antoine Ponsard and Francisco Escalona; 2016) Visualization tool to support literature review. Open source.

S23. **TimeLineCurator**. (with Johanna Fulda and Matt Brehmer; 2015) Authoring tool for journalists and others to create timeline from free-form text. Open source.

S22. **SEQIT**. (with Mike Wu; 2014) Visualization system designed for sequence analysis of eye tracking data. Open source.

S21. **APQ and QSNE**. (with Stephen Ingram; 2014) All-Pairs Query, or APQ, nearest-neighbor algorithm and the Q-SNE, dimensionality reduction algorithm. Open source.

S20. **Overview**. (with Stephen Ingram, Jonathan Stray, Jonas Karlsson, and Adam Hooper; 2012-2013) Visualization and analysis tool for large sets of documents, intended to support investigative journalism. Open source.

S19. **Variation View**. (with Joel Ferstay and Cydney Nielsen; 2013) Visual analysis tool genomic sequence variant analysis. Open source.

S18. **Vismon**. (with Maryam Booshehrian and Torsten Moeller; 2012) Visual analysis tool for fisheries simulation data, including sensitivity analysis, global trade-offs analysis, and staged uncertainty. Open source.

S17. **DimStiller**. (with Stephen Ingram; 2010) Visualization system for dimensional analysis and reduction, providing guidance for middle-ground users. Open source.

S16. **MulteeSum** (with Miriah Meyer; 2010) Exploration tool that supports the comparison of multiple gene expression data sets defined both spatially and temporally. Open source.

S15. **Pathline**. (with Miriah Meyer; 2010) Tool that visualizes temporal gene expression data over multiple molecular pathways and across multiple species. Open source.

S14. **Mizbee**. (with Miriah Meyer; 2009) Browser that enables analysis of comparative genomics data through visualization across multiple scales. Open source.

S13. **Glimmer**. (with Stephen Ingram; 2008) GPU and CPU versions of fast and robust multilevel multidimensional scaling algorithm. Open source.

S12. **GrouseFlocks, Grouse**. (with Daniel Archambault; 2008) Multilevel graph hierarchy exploration tools, built on the Tulip framework. Open source.

S11. **SPF**. (with Daniel Archambault; 2008) Smashing Peacocks Further quasi-tree graph layout, built on Tulip and TopoLayout. Open source.

S10. **TopoLayout**. (with Daniel Archambault; 2008) Feature-based multilevel graph layout, built on the Tulip framework by David Auber. Open source.

S9. **Cerebral**. (with Aaron Barsky; 2008) Cytoscape plugin for compartmentalized network layout, for instance using subcellular localization annotations, and comparing quantitative data from multiple experiments. Open source.

S8. **SequenceJuxtaposer**. (with James Slack, Kristian Hildebrand; 2005) Visualization software for browsing and comparing gene sequences. Open source.

S7. **TreeJuxtaposer**. (with James Slack, Kristian Hildebrand, Francois Guimbretiere, Li Zhang, Yunhung Zhou; 2003) Visualization software for browsing and comparing large trees, especially phylogenetic or taxonomic trees. InfoVis 2004 contest overall winner. Open source.

**S6. HypViewer.** (1997) The 3D hyperbolic module used in Site Manager below, in library form. Source released for free noncommercial use.

**S5. Site Manager.** (with Alan Braverman and Greg Ferguson; 1997) Free software from Silicon Graphics for webmasters and content creators, with a 3D hyperbolic view of the link structure of the target web site using layout from InfoVis97 paper and guaranteed frame rate drawing algorithm from Graph Drawing 98 paper. Binary release bundled with Irix 6.5.

**S4. Caidants.** (with Eric Hoffman; 1996) The CAIDA toolset for network drawing, used to create a series of short videos including Planet Multicast and autogenerated web pages. Open source.

**S3. WebOOGL.** (1994) Proof of concept implementation of integrating 3D graphics with the web. Runner-up proposal for VRML 1.0 standard, the vote was won by SGI's Inventor-based proposal. Open source.

**S2. Triangle Tiling.** (with Charlie Gunn, Stuart Levy, and Olaf Holt; 1994.) Museum exhibit on display at the Science Museum of Minnesota for several years, allowed visitors to explore the connections between symmetry groups, tiling, duality, the Platonic and Archimedean solids, and non-Euclidean geometry through interactive 3D graphics. Open source.

**S1. Geomview.** (with Stuart Levy and Mark Phillips; 1992) 3D interactive visualization package with over one thousand registered users at its peak, includes support for non-Euclidean and higher-dimensional geometry. Open source.