

RESEARCH INTERESTS

I am the director of Tableau Research (<https://www.tableau.com/research>), where I lead an interdisciplinary team of research scientists exploring areas of HCI, applied ML/AI, NLP, and data visualization. I earned my doctorate in Computer Graphics in 2005 at Northwestern University. I love pushing the boundaries of product innovation in a principled fashion, drawing from both research and engineering.

My research interests lie at the intersection of natural language processing and computer graphics. In particular, the goal of my work is to develop new computer algorithms and user interfaces that enhance visual communication and understanding of the semantics of the underlying data. My research combines concepts and methods from information retrieval, human perception, and cognitive science to help users effectively interact with devices and information in their environment. A significant portion of my work covers the investigation, prototyping, and evaluation of such novel concepts.

Since joining Tableau Research in 2012, I have worked on various projects and prototypes involving semantics and visual representation, such as semantic icon encoding and semantically resonant color palettes. Most recently, I have been interested in exploring analytical conversation using natural language interaction via a system called Eviza. Subsequently, as part of productizing Tableau's natural language feature, Ask Data, I moved to the engineering organization of Tableau and was the engineering manager on the Natural Language Team. There, I focused primarily on developing the theory and engineering of user intent in analytical conversation to provide analytically useful interpretations of users' utterances, among other things. With a couple of releases of the feature, I have moved back to research to explore various natural language product initiatives at Tableau, including leading strategy and innovation of Tableau's enterprise search platform.

Most recently, in 2022, I co-authored a book titled, *Functional Aesthetics for Data Visualization*, published by Wiley. <https://www.functionalaestheticsbook.com/>

EDUCATION

Doctor of Philosophy, June 2005.

NORTHWESTERN UNIVERSITY, EVANSTON, IL Advisor: Professor Bruce Gooch

Dissertation Title: Optimizing Computer Imagery for More Effective Visual Communication

Master of Science Computer Science, June 2004.

NORTHWESTERN UNIVERSITY, EVANSTON, IL.

Bachelor of Science in Computer Engineering, with honors, December 2000.
BANGALORE INSTITUTE OF TECHNOLOGY, BANGALORE, INDIA.

Honors Thesis Title: Behavior Protocols in Internet Auctions
Honors Thesis Advisor: Professor Yadati Narahari
Department of Computer Science and Automation,
INDIAN INSTITUTE OF SCIENCE, BANGALORE, INDIA.

RESEARCH EXPERIENCE

Director, Tableau Research, 2021 - present.
TABLEAU SOFTWARE / SALESFORCE, PALO ALTO, CA.

I lead an interdisciplinary team of research scientists in areas including data visualization, multimodal interaction, statistics, applied ML, and NLP. My personal research interests lie at the intersection of natural language processing and computer graphics.

Principal Research Scientist, 2012 -2021.
TABLEAU SOFTWARE, PALO ALTO, CA.

My research largely involves new methodologies to help people better understand and visualize data. This encompasses data analysis, natural language processing, and visualization concepts.

Principal Research Scientist, 2006 - 2012.
NOKIA RESEARCH CENTER, PALO ALTO, CA.

My work involves researching novel rendering algorithms particularly targeted for mobile-based interactive visualizations. My research interests include semantic graphics, *i.e.* the usage of machine learning to better improve graphics design, such as for maps, automotive interfaces, sensor-based technologies, and cross-device interactions.

At Nokia, my research covered the following three areas:

Cross device interaction, sensors and new interface paradigms:

The number of devices a user owns and interacts with is steadily increasing. Mobile phones, tablets, and laptops are now common in a user's ecosystem and introduce opportunities to engage in tasks that span multiple devices. I am interested in new interaction and interface paradigms that allow a user to seamlessly interact with devices around him. I have worked extensively with new form factors on touch screen devices and associated hardware, along with gestural interaction to better understand how cross device behavior can be more effective and intuitive. I leveraged on-device accelerometers and touch-screen specific sensors such as touch and pressure to determine meaningful interactions and content presentation on these devices.

Map navigation and automotive interfaces:

One of the major problems with visualizing route maps is that the amount of information visualized is always the same regardless of the fact that an individual may be more familiar

with the region or whether an individual is driving at varying speeds. Studies have shown that complex visualizations with visual clutter can cause cognitive overload which adversely affects the performance of a user. My research involves the use of mobile and automotive context to automatically vary map visualization being displayed to the user based on the speed of the vehicle as well as the familiarity of the region that the user is driving in.

Visualization and iconography:

Image retargeting is the process of optimizing imagery for different display resolutions. The main challenge is deciding what is needed for the target audience and the retargeting work can be applied to determine optimal approaches in the creation and layout of mobile content. My work, such as 'Semanticons,' can not only be applied for display critical purposes, but also to general, commonly used applications that can help the user to quickly locate information or make a given task more efficient. Further, I am also interested in developing new visualizations and navigation techniques for large scale data on a mobile device.

Research Scientist, 2005 - 2006.
NOKIA RESEARCH CENTER, DALLAS, TX.

Worked on technologies of rich media services, i.e. the ability to integrate advances made in the mobile space domain, delivering music, speech, text, raster graphics, scalable vector graphics (SVG) and video. This involves the ability to deliver these modalities, to interact with these modalities, and to do it in a way that allows for the construction, delivery and use of compelling mobile services in an effective and economic manner. This includes contribution to standards (3GPP, OMA, W3C) and developing features to extend SVG to support rich media functionality on Symbian S60 platforms. Several patents were filed and a publication submitted to an IEEE conference. Applications include interactive maps, mobile TV and mobile entertainment.

Involved in the Future UI Program to provide advanced graphics effects, hardware acceleration and optimization to 2D and 3D UI components on S60, S40 and Linux platforms. Exploring a new genre of OpenGL ES 2.0 shader effects for mobile UI. Working with Nokia UI Design team to explore usability concepts and mapping graphics technology to such concepts.

Graduate Research Assistant, 2001 - 2005.
NORTHWESTERN UNIVERSITY, EVANSTON, IL.

Automatic Image Retargeting, to provide *effective* small images by preserving the recognizability of important image features during downsizing.

Semantics, an information visualization method for automatically generating semantically enhanced file icons in desktop applications.

Vector-Based Animation Retargeting, to enable *Flash* animations created for the World Wide Web to accommodate the aspect ratios of handheld display devices.

Mona Lisa Smile, a software system that allows non-artists to easily create novel and interesting portraits that depict conflicting emotional states at varying spatial frequencies. This work is based on psychologists' theories on the secret behind Mona Lisa's enigmatic smile.

TECHNICAL SKILLS

As part of my research, I have experience programming with Go, Python, Natural Language Toolkit (NLTK), Javascript/D3/Vegalite, Java, C#, along with the use and application of large-scale language models (e.g., BERT, RoBETa, GPT3, GPT4

In order to evaluate my work and other systems, I employ one of many methods such as diary studies, questionnaire design, individual and group interviews, in-lab and field observations as all as statistical analysis.

PUBLICATIONS

REFEREED JOURNAL AND CONFERENCE PUBLICATIONS

Setlur, V., Beers, A. LOKI: Reusing Custom Concepts in Interactive Analytic Workflows. Eurographics Conference on Visualization 2023 (to appear).

Srinivasan, A., **Setlur, V.** BOLT: A Natural Language Interface for Dashboard Authoring. Eurographics Conference on Visualization 2023 (to appear).

Pandey, A., Srinivasan, A., **Setlur, V.** MEDLEY: Intent-based Recommendations to Support Dashboard Composition. IEEE VIS 2022 (best paper honorable mention).

Gaba, A., **Setlur, V.**, Srinivasan, A., Hoffswell, J., Xiong, C. Comparison Conundrum and the Chamber of Visualizations: An Exploration of How Language Influences Visual Design. IEEE VIS 2022.

Setlur, V. Correll M., Battersby, S. Oscar: A Semantic-based Data Binning Approach. IEEE VIS 2022.

Stokes, C., **Setlur, V.**, Cogley, B., Satyanarayan, A., Hearst, M.A. Striking a Balance: Reader Takeaways and Preferences when Integrating Text and Charts. IEEE VIS 2022.

Whilden, A., Karis, D., **Setlur, V.**, Degtyar, R., Que, J., Lympelopoulos, F. Blocks: Creating Rich Tables with Drag-and-Drop Interaction. Eurographics Conference on Visualization 2022 (best paper honorable mention).

Setlur, V., Tory, M. How do you Converse with an Analytical Chatbot? Revisiting Gricean Maxims for Designing Analytical Conversational Behavior. CHI 2022.

Xiong, C., **Setlur, V.**, Bach, B., Lin, K., Koh, E., Franconeri, S. Visual Arrangements of Bar Charts Influence Comparisons in Viewer Takeaways. IEEE VIS 2021.

Setlur, V., Chung, H. Semantic Resizing of Charts Through Generalization: A Case Study with Line Charts. IEEE VIS 2021 (best paper honorable mention).

Srinivasan, A., **Setlur, V.** Snowy: Recommending Utterances for Conversational Visual Analysis. UIST 2021.

Crisan, A., **Setlur, V.**, Natto: Rapid Visual Iteration of Analytic Data Models with Intelligent Assistance. KDD 2021 Visualization in Data Science Workshop.

Lee, D., **Setlur, V.**, Tory, M., Karahalios, K., Parameswaran, A. Deconstructing Categorization in Visualization Recommendation: A Taxonomy and Comparative Study. IEEE Transactions on Visualization and Computer Graphics, 2021 (presented at IEEE VIS 2021).

Kim, D., **Setlur, V.**, Agrawala, M., Towards Understanding How Readers Integrate Charts and Captions: A Case Study with Line Charts, CHI 2021.

Setlur, V. and Kumar, A., Sentifiers: Interpreting Vague Intent Modifiers in Visual Analysis using Word Co-occurrence and Sentiment Analysis. IEEE VIS 2020.

Setlur, V., Hoque, E., Kim, D., Chang, A. Sneak Pique: Exploring Autocompletion as a Data Discovery Scaffold for Supporting Visual Analysis. UIST 2020.

Setlur, V. Data-driven Intent Models for Visual Analysis Tools and Chatbot Platforms. Workshop on Artificial Intelligence for HCI: A Modern Approach at CHI (April 25, 2020).

- Tory, M., and Setlur, V. Do **Setlur, V.** What I Mean, Not What I Say! Design Considerations for Supporting Intent and Context in Analytical Conversation. IEEE Vis 2019.
- Hearst, M., Tory, M., **Setlur, V.** Toward Interface Defaults for Vague Modifiers in Natural Language Interfaces for Visual Analysis. IEEE Vis 2019.
- Setlur, V.**, Watson, B. ShoCons: Effective Display of Shortcuts in Icon Toolbars. International Conference on Computer-Human Interaction Research and Applications (CHIRA) 2019.
- Setlur, V.**, Tory, M., Djalali, A. Inferencing Underspecified Natural Language Utterances in Visual Analysis. Intelligent User Interfaces (IUI) 2019.
- Wesley, R., **Setlur, V.**, Cory, D. Does Anybody Really Know What Time It Is? Automating the Extraction of Date Scalars. Tableau Research White Paper (TR #2018-01).
- Hoque, E., **Setlur, V.**, Tory, M., Dykeman, I. Applying Pragmatics Principles for Interaction with Visual Analytics. IEEE Conference on Visual Analytics Science and Technology (VAST), 2017.
- Setlur, V.**, Tory, M. Exploring Synergies between Visual Analytical Flow and Language Pragmatics. AAAI Spring Symposium on Designing the User Experience of Machine Learning Systems.
- Sadana, R., **Setlur, V.**, Stasko, J. Redefining a Contribution for Immersive Visualization Research. Proceedings of the 2016 ACM Companion on Interactive Surfaces and Spaces.
- Setlur, V.**, Battersby, S. E., Tory, M., Gossweiler, R., Chang, A. X. Eviza: A Natural Language Interface for Visual Analysis. ACM User Interfaces and Software Technology (UIST) 2016.
- Setlur, V.**, Stone, M. A Linguistic Approach to Categorical Color Assignment for Data Visualization The IEEE Information Visualization Conference 2015.
- Bae, J., **Setlur, V.**, Watson, B. GraphTiles: A Visual Interface Supporting Browsing and Imprecise Mobile Search. MobileHCI 2015 Conference.
- Talbot, J., **Setlur, V.**, Anand, A. Four Experiments on the Perception of Bar Charts. InfoVis 2014.
- Setlur, V.**, Mackinlay, J. Automatic Generation of Semantic Icon Encodings for Visualizations. CHI 2014.
- Setlur, V.**, Wiehr, F., Joshi, A. DriveSense: Contextual Handling of Large-scale Route Map Data for the Automobile. IEEE BigDataVis 2013.
- Amini, S., **Setlur, V.**, Hayashi, E., Hong, J. Investigating Collaborative Mobile Search Behaviors. Mobile HCI 2013.
- Weihr, F., **Setlur, V.**, Joshi, A. Auto(mobile): Mobile Visual Interfaces for the Road. Siggraph Mobile 2012.
- Sohn, T., Li, F., Battestini, A., **Setlur, V.**, Mori, K., Horii, H. Myngle: Unifying and Filtering Web Content for Unplanned Access Between Multiple Personal Devices. UbiComp 2011: ACM International Conference on Ubiquitous Computing.

- Bales, E., Sohn, T., **Setlur, V.** Planning, Apps, and the High-end Smartphone: Exploring the landscape of modern cross-device reaccess. Pervasive 2011: International Conference on Pervasive Computing
- Setlur, V.**, Rossoff, S., Gooch, B. Wish I Hadn't Clicked That: Context Based Icons for Mobile Web Navigation and Directed Search Tasks. Intelligent User Interfaces (IUI) 2011.
- Sohn, T., **Setlur, V.**, Mori, K., Kaye, J., Horii, H., Battestini, A. Ballagas, R., Paretti, C., Spasojevic, M. Addressing Mobile Information Overload in the Universal Inbox through Lenses. Mobile Human Computer Interaction (MobileHCI) 2010.
- Battestini, A., **Setlur, V.**, Sohn, T. A Large Scale Study of Text Messaging Use. Mobile Human Computer Interaction (MobileHCI) 2010.
- Setlur, V.**, Kao, C., Mikelsons, P. Towards Designing Better Map Interfaces for the Mobile: Experiences from Example. The 1st International Conference on Computing for Geospatial Research and Application.
- Tian, F., Lv, F., Wang, J., Wang, H., Luo, W., Kam, M., **Setlur, V.**, Dai, G., Canny, J. Let's Play Chinese Characters -Mobile Learning Approaches via Culturally Inspired Group Games, CHI 2010.
- Setlur, V.**, Battestini, A., Sohn, T., Horii, H. Using Gestures on Mobile Phones to Create SMS Comics, International Conference on Tangible, Embedded and Embodied Interaction (TEI), 2010.
- Chen, W., Battestini, A., Gelfand, N., **Setlur, V.** Visual Summaries of Popular Landmarks from Community Photo Collections , ACM Multimedia 2009.
- Setlur, V.**, Battestini, A. Using Comics as a Visual Metaphor for Enriching SMS Messages with Contextual and Social Media, MobileHCI 2009, Workshop on Sharing Experiences with Social Mobile Media.
- Setlur, V.**, Battestini, A., and Ding, Xianghua. Automatic Generation of Travel Scrapbooks, IEEE International Conference on Multimedia and Expo (ICME), 2009.
- Setlur, V.**, Rossoff, S., Gooch, B. SemantiLynx: Using Context Based Icons for Web Navigation and Directed Search Tasks, UIST 2008.
- Tian, F., **Setlur, V.**, Tilt Menu: Using the 3D Orientation Information of Pen Devices to Extend the Selection Capability of Pen-based User Interfaces, CHI 2008.
- Setlur, V.**, Neinhaus, M., Lechner, T., Gooch, B. Retargeting Images for Preserving Information Saliency, IEEE Computer Graphics and Applications (CG&A) 2007.
- Tian, F., Ao, X., Wang, H., **Setlur, V.**, Dai, G. The Tilt Cursor: Enhancing Stimulus-Response Compatibility by Providing 3D Orientation Cue of Pen, CHI 2007.
- Capin, T., Haro, A., **Setlur, V.**, and Wilkinson, S., Camera-Based Virtual Environment Interaction on Mobile Devices, 21st International Symposium on Computer and Information Sciences (ISCIS), 2006.
- Setlur, V.**, Optimizing Computer Imagery for More Effective Communication.ACM Grace Hopper Conference for Women in Computing, 2006.

Setlur, V., Capin, T., Chitturi, S., Vedantham, R., and Ingrassia, M., MORE: Mobile Open Rich-media Environment, IEEE International Conference on Multimedia and Expo (ICME), 2006.

Setlur, V., Wilkinson, S. Automatic Stained Glass Rendering. Computer Graphics International (CGI) 2006.

Setlur, V., Takagi, S., Raskar, Ramesh., Gleicher, M., and Gooch, B. Automatic Image Retargeting. In the Mobile and Ubiquitous Multimedia (MUM) 2005, ACM Press 2005.

Setlur, V., Xu, Yingqing, and Gooch, B. Vector Based Retargeting. In the Mobile and Ubiquitous Multimedia (MUM) 2005, ACM Press 2005.

Haro, A., Mori, K., **Setlur, V.**, and Capin, T. Mobile Camera-based Adaptive Viewing. In the Mobile and Ubiquitous Multimedia (MUM) 2005, ACM Press 2005.

Setlur, V., Albrecht-Buehler, C., Gooch, A., Rossoff, S., Gooch, B. Semanticons: Semantic-Based File Icons. In IEEE Computer Graphics and Applications Special Issue on Smart Depiction 2004, IEEE Press, 2004.

Setlur, V., and Gooch, B. Is That a Smile? Gaze Dependent Facial Expressions. In Proceedings of the 3rd International Symposium on Non-photorealistic Animation and Rendering 2004, pp. 79 - 86, ACM Press, 2004.

Setlur, V., Shamma, D., and Hammond, K. Towards a Non-Linear Narrative Construction. In Proceedings of the 8th International Conference on Intelligent User Interfaces 2003, pp. 82-86, ACM Press, 2003.

TECHNICAL REPORTS AND CONFERENCE PRESENTATIONS

Setlur, V., Albrecht-Buehler, C., Gooch, A., Rossoff, S., Gooch, B. Semanticons: Semantic-Based File Icons. Northwestern University Technical Report. NWU-CS-04-46, 2004.

Setlur, V., Takagi, S., Raskar, R., Gleicher, M., and Gooch, B. Automatic Image Retargeting. Conference Abstracts and Applications of ACM SIGGRAPH 2004.

Setlur, V., Takagi, S., Gleicher, M., Raskar, R., and Gooch, B. Automatic Image Retargeting. Northwestern University Technical Report. NWU-CS-04-41, 2004.

ISSUED PATENTS

Semantic Resizing of Line Charts. US11600028. March 2023.

Applying a Visual Analytics Intent Language to Infer Ambiguous or Underspecified Intent. US11567967. Jan 2023.

Implementing a Visual Analytics Intent Language Across Multiple Devices. US11561998. Jan 2023.

Using Natural Language Expressions to Define Data Visualization Calculations that Span Across Multiple Rows of Data from a Database. US11550853. Jan 2023.

Generating Data Visualizations with Visual Data Marks having Individually Calculated Grid Positions. US11500520. Nov 2022.

Generating Data Visualizations with Displayed Visual Data Marks Representing Aggregated Data at Multiple Levels of Detail. US11500891. Nov 2022.

Incremental Updates to Natural Language Expressions in a Data Visualization User Interface. US11455339. Sept 2022.

Determining Ranges for Vague Modifiers in Natural Language Commands. US11416559. Aug 2022.

Applying a Visual Analytics Intent Language to Generate Data Visualizations. US11409763. Aug 2022.

Methods and Systems for Inferring Intent and Utilizing Context For Natural Language Expressions To Modify Data Visualizations in a Data Visualization Interface. US11314817. April 2022.

Interpreting Vague Intent Modifiers in Visual Analysis using Word Co-occurrence and Sentiment Analysis. US11314786. April 2022.

Analyzing Underspecified Natural Language Utterances in a Data Visualization User Interface. US11244114. Feb 2022.

Using Natural Language Processing for Visual Analysis of a Data Set. US11244006. Feb 2022.

Using Natural Language to Generate Data Visualizations. US11210333. Dec 2021.

Determining Levels of Detail for Data Visualizations using Natural Language Constructs. US11055489. July 2021.

Analyzing Natural Language Expressions in a Data Visualizations User Interface. US11048871. June 2021.

Determining Ranges for Vague Modifiers in Natural Language Commands . US11042558. June 2021.

Methods and Systems for Inferring Intent and Utilizing Context For Natural Language Expressions To Generate Data Visualizations in a Data Visualization Interface. US11030255. June 2021.

Updating Displayed Data Visualizations According to Identified Conversation Centers in Natural Language Commands. US11030207. June 2021.

Data Visualization User Interface Using Cohesion of Sequential Natural Language Commands. US11010396. May 2021.

Natural Language Interface for Building Data Visualizations, Including Cascading Edits to Filter Expressions. US10902045. Jan 2021.

Identifying Intent in Visual Analytical Conversations. US10896297. Jan 2021.

Systems and Methods of Using Natural Language Processing for Visual Analysis of a Data Set. US10817527. Oct 2020.

Applying Natural Language Pragmatics in a Data Visualization User Interface. US10795902. Oct 2020.

Systems and Methods of Using Natural Language Processing for Visual Analysis of a Data Set. US10515121. Dec 2019.

Systems and Methods for Semantic Icon Encoding in Data Visualizations. US9858292. Jan 2018.

Method, apparatus and computer program product for visually grouping relationships from databases. US8725744 B2, May 2014.

Method and apparatus for indicating an analysis criteria. US8406458 B2, Mar 2013.

Directional peer-to-peer networking. US8620348 B2, Dec 2013.

Transport mechanisms for dynamic rich media scenes. US8239558 B2, Aug 2012.

Extensions to rich media container format for use by mobile broadcast/multicast streaming servers. US7917644, 29 Mar 2011, USA. Also granted in South Korea. Filed in India, Europe, and China.

Apparatus, method and computer program product for generating a thumbnail representation of a video sequence. US8032840 B2, Oct 2011.

System and method for providing feedback and forward transmission for remote interaction in rich media applications. Grant number 0984694, 27 Sept 2010, South Korea. Also filed in USA, Taiwan, Japan, Europe, and China.

System and Mechanisms for Visually Summarizing the Activity of Information Filters on a Mobile Device. Publication number WO2011/117835, filed Mar 2010, USA.

System and Mechanisms for Monitoring Information Streams and Generating Events. Publication number WO2011/117833, filed Mar 2010, USA.

System and Mechanisms for Logging of Information Stream Events in Activity Graphs. Publication number WO2011/117834, filed Mar 2010, USA.

System and Mechanisms for Generating Map Snippets of Web Based Map Searches. Publication number WO2011/151507, filed Jun 2010, USA.

Assembling rich media-based random access points with forward error correction frames. US7746882, Jun 2010, USA. Also granted in South Africa and South Korea. Filed in Indonesia, Mexico, Nigeria, Ukraine, Australia, Brazil, Canada, China, Europe and India.

Retargeting images for small displays. US7574069, Aug 2009.

Method to Embedding SVG content into an ISO Base Media File Format for progressive downloading and streaming of rich media content. US0927928, Nov 2009, South Korea. Also filed in Taiwan, USA, Europe, and China.

System and method for measuring SVG document similarity. US7403951. July 2008, USA. Also granted in Hong Kong, China, Europe, Japan, Republic of South Korea, and Taiwan.

COLLABORATION

I firmly believe that in order to do effective research, the whole is greater than the sum of its parts. At work, I enjoy working with multidisciplinary teams and people ranging from designers, engineers, ethnographers, professors, interns, and cognitive scientists. Externally, I actively collaborate with academia in the form of projects, teaching, and being part of students' thesis committees. Here is a list of external collaborators I have worked with:

Professor Arvind Satyanarayan, MIT

Professor Maneesh Agrawala, Stanford University.

Professor Cindy Xiong, University of Massachusetts, Amherst.

Professor Narges Mahyar, University of Massachusetts, Amherst.

Professor Ali Sarvghad, University of Massachusetts, Amherst.

Professor Melanie Tory, Roux Institute at Northeastern University.

Professor Grant McKenzie, McGill University.

Professor Steven Franconeri, Northwestern University.

Professor Karrie Karaholios, University of Illinois, Urbana-Champaign.

Professor Aditya Parameswaran, UC Berkeley.

Professor Marti Hearst, UC Berkeley.

Professor John Stasko, Georgia Tech.

Professor Kwan-Liu Ma, UC Davis.

Professor Benjamin Watson, North Carolina State University.

Professor Alark Joshi, Boise State University.

Professor Pat Hanrahan, Stanford University.

Professor John Canny, UC Berkeley.

TEACHING AND MENTORING

I am interested in teaching interdisciplinary graduate level courses in information visualization, computer graphics, computational aesthetics, art and perception. At the undergraduate level I am interested in teaching algorithms, data structures, introductory programming courses, web technologies, human computer interaction, and graphics.

I have co-taught courses on data visualization, mobile interfaces, and computer graphics at various conferences including Siggraph Asia, Mobile HCI and HCI International.

Other appointments include:

Visiting teaching faculty, Jio Institute, Mumbai, 2022 - present

Teach a data visualization course to post-graduate students that cover theory, research, and practice using Tableau, D3/Vega-lite. Involved in mentoring students in their yearly capstone projects.

Adjunct Professor, Carnegie Mellon University, 2007

Taught a mobile course on developing mobile thick clients using J2ME.

Lecturer, San Jose State University, 2007

Taught Mobile Multimedia Technologies, an undergraduate and graduate course on mobile 2d and 3D Java based graphics APIs, web technologies and Flash Lite.

Industry Mentor, Stanford University

Fall 2006 - Spring 2007, advising 4 students on a specific joint project between Nokia Research Center, Nokia Design and Stanford Design School's ME 310 course. Mentoring involves feedback, suggestions and advice on presentations and prototypes developed by this student group.

Teaching Assistant, Northwestern University

CS 395/495-25: Non-photorealistic Rendering (with Bruce Gooch), Department of Computer Science, Northwestern University, Winter 2004. Developed class web page, led discussion, and performed evaluation.

CS 330: Human-Computer Interaction (with Ben Watson and Louis Gomez), Department of Computer Science, Northwestern University, Winter 2002. Led discussion, grading and example solutions, office hours.

CS 130: Tools and technology of the World-Wide Web (with Kristian Hammond and Sanjay Sood), Department of Computer Science, Northwestern University, Fall 2002. Grading

CS 336: Design and Analysis of Algorithms, Department of Computer Science, Northwestern University, Spring 2001. Grading.

Teaching Mentor, Northwestern University

Mentored new graduate students on teaching engineering courses at the Searle Center for Teaching Excellence, Northwestern University in Summer 2002 under the guidance of Melissa Luna. Prepared teaching material, and course notes, and advised students on teaching techniques and grading.

INVITED TALKS

The Role of Functional Aesthetics in Visual Analysis. Visual Communication Symposium. Rice University. 2023.

The Role of Functional Aesthetics in Visual Analysis. Northwestern University Center for HCI +Design. 2022.

The Role of Functional Aesthetics in Visual Analysis. Texas A & M. 2022.

What makes intelligent visual analytics tools really intelligent? - WiDS keynote. 2022.

Keynote - What makes intelligent visual analytics tools really intelligent?. The 27th International Working Conference on Requirement Engineering: Foundation for Software Quality (REFSQ) April 2021.

Regular speaker at the Tableau Customer Conference, 2013-2019.

Natural Language, Ask Data, and Other Tableau Stories, Comcast Labs, 2019.

The Promise of Natural Language Processing (NLP), Data Science Central, 2018.

A Natural Language Processing (NLP) Approach to Data Exploration, Data Science Central, 2017.

Semantic Graphics for More Effective Visual Communication, keynote at Graphics Interface 2009.

Diversity in your Workplace, March 2009, CRA-W Graduate Cohort Workshop.

Non-Academic Career Path Post Ph.D., March 2009, CRA-W Graduate Cohort Workshop.

Semantilinks: Context Aware Hyperlinks for More effective Browsing, April 2006, Nokia Exchange for Research and Development (NERD) 2006, Helsinki, Finland.

Time Management and Balance: A Graduate School Gathering, October 8 2004, Grace Hopper Conference, Chicago, IL.

Vector-Based Animation Retargeting, November 6 2004, the Mid-Graph Conference, Northwestern University, Evanston, IL.

Is that a Smile? Gaze Dependent Facial Expressions, November 10 2003, the Mid-Graph Conference, Washington University, St. Louis, MO.

A Life Without Friction: Tales from the InfoLab, January 2003, the International Conference of Intelligent User Interfaces, Miami, FL.

FELLOWSHIP

2002 Teaching Assistant Fellow at the Searle Center for Teaching Excellence, Northwestern University, Evanston, IL.
Designed and conducted teaching assistant workshops.

PROFESSIONAL AFFILIATIONS AND SERVICE

Supporters co-chair, IEEE VIS 2023.

Program co-chair, UIST 2022.

Doctoral symposium co-chair, UIST 2021.

Program committee member for IEEE VIS, IUI, CHI, UIST.

Advisory board member for prepare.ai, an AI conference based in St. Louis.

General chair of the International Conference on Mobile and Ubiquitous Multimedia (MUM) 2006, held at Stanford University.

Reviewer for SIGGRAPH, Eurographics, IEEE VIS, TVCG, HILDA, IUI, IEEE CG&A, IEEE Transactions on Multimedia, ACM Multimedia, Mobile HCI.

President of the ACM-W (ACM Women in Computing) organization at the Computer Science Department at Northwestern University. 2003 - 2004

Member of ACM and IEEE.

REFERENCES

Available upon request.