

# Jonathan Isaac Helfman

## US PATENTS

- 8,463,733 **Using dotplots for comparing and finding patterns in sequences of data points**
- 8,451,272 **Time expansion for displaying path information**
- 8,436,859 **Graphical representations for aggregated paths**
- 8,434,867 **Finding sequential matches in eye tracking data**
- 8,432,399 **Radial vector plots for paths**
- 8,390,626 **Radial histograms for depicting path information**
- 8,286,100 **Linking graphical elements of data visualizations**
- 8,150,132 **Methods and systems for automatically determining a default hierarchy from data**
- 8,139,063 **Rendering data visualization with minimal round-off error**
- 8,108,437 **Sortable hash table**
- 8,095,514 **Treemap visualizations of database time**
- 7,823,070 **Methods and systems for extending existing user interfaces**
- 7,705,847 **Graph selection method**
- 7,519,573 **System and method for clipping, repurposing, and augmenting document content**
- 7,474,807 **System and method for generating usable images**
- 6,396,513 **Electronic message sorting and notification system**
- 6,119,135 **Method for passively browsing the internet using images extracted from web pages**  
(also WIPO 1997/029414, EP 0879448, CA 2246239)
- 5,970,484 **Method for retrieving texts which are similar to a sample text** (also EP 0665504, CA 2128973, JP 1995-219959)
- 5,953,006 **Method and apparatus for detecting and displaying similarities in large data sets** (also EP 0561563, CA 2091503, JP 1994-043838)
- 5,699,507 **Method of identifying similarities in code segments** (also CA 2167238, JP 1996-241193)

## PUBLICATIONS

- Goldberg and Helfman, **Eye tracking on visualizations: Progressive extraction of scanning strategies**, in *Human Centric Visualization: Theories, Methodologies and Case Studies*, (ed, Huang), Springer Publishing Company, HCV 2013, 2013.
- Goldberg and Helfman, **Eye tracking for visualization evaluation: Reading values on linear versus radial graphs**, *Information Visualization*, July 2011, Vol. 10, No. 3, pp. 185-195, 2011.
- Goldberg and Helfman, **Comparing information graphics: A critical look at eye tracking**, *Proceedings of the 3rd BELIV'10 Workshop*, dl.acm.org, 2010.
- Goldberg and Helfman, **Identifying Aggregate Scanning Strategies to Improve Usability Evaluations**, *Proceedings of the 54<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society*, pp. 590-594, San Francisco, CA, 2010.
- Goldberg and Helfman, **Visual Scanpath Representation**, *Proceedings of the 2010 Symposium on Eye-Tracking Research & Applications*, pp. 203-210, Austin, TX, 2010.
- Goldberg and Helfman, **Scanpath Clustering and Aggregation**, *Proceedings of the 2010 Symposium on Eye-Tracking Research & Applications*, pp. 227-234, Austin, TX, 2010.
- Goldberg, Helfman, and Beresniewicz, **From Research to Product: Integrating Treemaps into Enterprise Software**, *Human Interface and the Management of Information. Designing Information Environments*, Lecture Notes in Computer Science, V 5617/2009, pp. 243-252, HCI International Conference, San Diego, CA, 2009.
- White and Helfman, **Developing a Decision Support Tool for Design**, *Proceedings of the Human Factors and Ergonomics Society*, 52<sup>nd</sup> Annual Meeting, pp. 513-517, 2008.
- Goldberg, Helfman, and Martin, **Information Distance and Orientation in Liquid Layout**, *Proceedings of CHI 2008*, Florence, IT, ACM Press, pp. 1153-1156, 2008.
- Goldberg and Helfman, **Evaluating User Expectations for Widescreen Content Layout**, *Proceedings of the Usability Professionals' Association 2007 Annual Conference*, Austin, Texas, pp. 1-8, 2007.
- Helfman and Goldberg, **Selecting the Best Graph Based on Data, Tasks, and User Roles**, *Proceedings of the Usability Professionals' Association 2007 Annual Conference*, pp.1-10, 2007.
- Goldberg and Helfman, **Enterprise Network Monitoring Using Treemaps**, *Proceedings of the Human Factors and Ergonomics Society*, 49<sup>th</sup> Annual Meeting, September 26-30, 2005.
- Yamada, Shingu, Churchill, Nelson, Helfman, and Murphy, **Who Cares?: Reflecting Who is Reading What on Distributed Community Bulletin Boards**, *Proceedings of the 17<sup>th</sup> annual ACM Symposium on User Interface Software and Technology*, pp. 109-118, 2004.
- Carter, Churchill, Denoue, Helfman, and Nelson, **Digital Graffiti: Public Annotations of Multimedia Content**, *CHI Extended Abstracts 2004*: pp. 1207-1210.
- Nelson, Churchill, Denoue, Helfman, and Murphy, **Goey Interfaces: an Approach for Rapidly Repurposing Digit Content**, *CHI Extended Abstracts 2004*, pp. 1293-1296.
- Churchill, Nelson, Denoue, Helfman, and Murphy, **Sharing Multimedia Content with Interactive Displays: a Case Study**, *Conference on Designing Interactive Systems 2004*, pp. 7-16.

- Doherty, Girgensohn, Helfman, Shipman, and Wilcox, **Detail-on-Demand Hypervideo**, *Proceedings of ACM Multimedia 2003*, video/paper, November, 2003, pp. 600-601.
- Carter, Churchill, Denoue, Helfman, Murphy, and Nelson, **Palimpsests on Public View: Annotating Community Content with Personal Devices**, UBICOMP 2003, Seattle, Washington.
- Churchill, Nelson, Denoue, Helfman, and Murphy, **The Plasma Poster Network: Social Hypermedia on Public Display**, in *Public and Situated Displays: Social and Interactional Aspects of Shared Display Technologies, International Series on Computer Supported Cooperative Work* (eds. O'Hara, Perry, Churchill, and Russell), Kluwer Academic Publishers, 2003.
- Isbell, Amento, Whittaker, Bell, and Helfman, **Ishmail: Managing Massive Amounts of Mail**, *UIST 2002 International Symposium*, poster, 2002.
- Helfman and Hollan, **Image Representations for Accessing and Organizing Web Information**, *SPIE International Society for Optical Engineering Internet Imaging II Conference*, (eds. Beretta and Schettini), 2001, pp. 91-101.
- Helfman, **Image Representations for Access and Similarity-Based Organization of Web Information**, PhD Dissertation, University of New Mexico, CS Department, July 1999.
- Helfman, **Mandala: An Architecture for Using Images to Access and Organize Web Information**, *Visual Information and Information Systems, Third international Conference, VISUAL '99 Conf. Proceedings*, (eds. Huijsmans and Smeulders), Springer, June 1999, pp. 163-170.
- Hightower, Ring, Helfman, Bederson, and Hollan, **Graphical Multiscale Web Histories: A Study of PadPrints**, *Hypertext '98 Proceedings*, 1998, pp. 58-65.
- Hollan, Bederson, and Helfman, **Information Visualization**, in *Handbook of Human-Computer Interaction*, Second edition, (eds. Helander, Landauer, and Prabhu), North-Holland Elsevier, 1997, pp. 33-48.
- Helfman, **Dotplot Patterns: A Literal Look at Pattern Languages**, *Theory and Practice of Object Systems*, Special Issue on Patterns, V2, N1, 1996, pp. 31-41.
- Helfman, **Similarity Patterns in Language**, *1994 IEEE Symposium on Visual Languages*, St. Louis, MO, Oct. 1994, pp. 173-175.
- Helfman and Gross, **Extending a Graph Browser for Topological Graph Theory**, *DIMACS Workshop on Computational Support for Discrete Mathematics*, American Mathematical Society, V15, 1993, pp. 297-314.
- Church and Helfman, **Dotplot: A Program for Exploring Self-Similarity in Millions of Lines of Text and Code**, *Journal of Computational and Graphical Statistics*, V2, N2, June 1993, pp. 153-174.
- Church and Helfman, **Dotplot: A Program for Exploring Self-Similarity in Millions of Lines of Text and Code**, *24th Symposium on the Interface*, College Station, TX, Interface Foundation of North America, Computing Science and Statistics V24, March 1992, pp. 58-67.
- Church, Eick, Helfman, Koutsosios, North, and Steffen, **Three Examples of Software Visualization: Seesoft, Dotplot & Dot**, *2nd Annual AT&T Software Symposium*, Sept. 1992, pp. 58-66.
- Church and Helfman, **Dotplot: A Program for Exploring Self-Similarity in Millions of Lines of Text and Code**, *2nd Annual AT&T Software Symposium*, Sept. 1992, pp. 258-267.
- Papathomas, Kitsopoulos, and Helfman, **Arrows-anchors: Figure-Ground Reversals**, *Perception* V18, N5, 1989, p. 689.

Blewett, Wish, and Helfman, **A New IPC System for Bitmap Graphics Applications: Review, Model, and Benchmarks**, *USENIX Technical Conf. Proc.*, Phoenix, AZ, June 1987, pp. 159-184.

Helfman, **Panther: A Specification System for Graphical Controls**, *SIGCHI+GI '87 Conf. Proc.*, April 1987, pp. 279-284.

Blewett, Edmark, Helfman, and Wish, **A Multi-Representation, Bitmap Interface to the UNIX™ File System Constructed from Cooperating Processes**, *3rd USENIX Computer Graphics Workshop*, 1986, pp. 41-48.

## SELECTED FXPAL TECHNICAL REPORTS & MEMORANDA

Murphy, Nelson, Denoue, Helfman, and Churchill, **Plasma Poster Network(version 3.3); Architecture Description**, Oct. 2003.

Nelson, Churchill, Denoue, Helfman, and Murphy, **A Method and System for Extending Existing User Interfaces by Defining New Distributed Control Structures that Instrument Displayed Content to Aid Interface Repurposing**, May, 2003.

Murphy, Nelson, Denoue, Helfman, Billsus, and Churchill, **Recommendation systems for the PlasmaPoster Network**, May 2003.

Churchill, Nelson, Denoue, Helfman, and Murphy, **Plasma Poster Deployment, Interim Report**, May 2003.

Denoue, Helfman, Nelson, Churchill, and Murphy, **The PlasmaPoster User Interface Architecture**, May, 2003.

Helfman and Schneider, **Drawing with Image Edges**, March, 2003.

## SELECTED BELL LABS TECHNICAL MEMORANDA

Church, Dagan, Gale, Fung, Helfman, and Satish, **Aligning Parallel Texts: Do Methods Developed for English – French Generalize to Asian Languages?**, July, 1993.

Helfman, **Dotplot Tutorial & Reference Manual**, October, 1992.

Ammicht and Helfman **TOKONOMA - A DSP3 Code Generator for Systolic SPMD Applications**, Jan. 3, 1992.

Helfman, **Xtent-Based Tools for Viewing Directories of Bitmap Image Files**, Nov., 1991.

Helfman, **Fontview: A Tool for Viewing the Fonts and Font Aliases of the X-Window System™**, Oct. 1991.

Helfman, **A Quick and Dirty Lock and Buffer Manager for the EGGS Hypermedia Database System**, Oct. 1991.

Helfman, **Bonsai Users' Guide**, Sept. 1989.

Helfman, Ruedisueli, Shugard, **Nfspsy: A System for Exploring the Network File System**, May, 1989.

Kapilow and Helfman, **A 5620 Emulator Library for Version 11 X Windows and Suntools**, April, 1988.

Helfman and Cristofor, **Stumbling into Security Holes in BSD and NFS Software**, Dec. 1987.

Helfman, **Bonsai: A Prototype Graph Browser and Graphical Interface Tool**, Oct. 1987.

Wish, Blewett, Helfman, and Edmark, **Taming the UNIX™ Interface: A New Approach and Prototype**, Sept., 1986.

Weil and Helfman, **Specification for Animation Using Keyframes (SPANKEY)**, Nov. 1984.

## INVITED TALKS

**Two Systems for Information Visualization**, Los Alamos National Lab, Los Alamos, NM, Dec. 1998.

**Insights and Surprises Using Image Representations to Access and Organize Web Information**, AT&T Web Implementor's Symposium, July 1998.

**Textual Similarity Patterns: Revealing Hidden Structure in Text, Code, Data and Language**, Brown University, CS Department, 21st Industrial Partners Symposium, Providence, RI, May 1998.

**Passive Surfing: Between Access and Entertainment**, Human Computer Interaction Consortium, Snow Mountain Ranch, CO, Feb. 1996.

**Exploring Textual Similarity Patterns in Millions of Lines of Text and Software**, University of Arizona, Tucson, AZ, Oct. 1994.

**Exploring Textual Similarity Patterns in Millions of Lines of Text and Software**, New Mexico State University, Las Cruces, NM, Jan. 1994.