

# Martin M. Wattenberg

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**Martin M. Wattenberg** (b. 1970) is an American scientist and artist known for his work with data visualization. Along with [Fernanda Viégas](#), he worked at the Cambridge location of IBM's [Thomas J. Watson Research Center](#) as part of the [Visual Communication Lab](#), and created [Many Eyes](#). In April 2010, Wattenberg and Viégas started a new venture called [Flowing Media, Inc.](#), to focus on visualization aimed at consumers and mass audiences.<sup>[1]</sup> Four months later, both of them joined Google as the co-leaders of the Google's "Big Picture" data visualization group in Cambridge, MA.<sup>[2][3]</sup>

## Martin M. Wattenberg

<b>Residence</b>	Massachusetts
<b>Nationality</b>	American
<b>Fields</b>	visualization, interactive art, journalism
<b>Institutions</b>	IBM Research
<b>Alma mater</b>	Ph.D. Mathematics, U.C. Berkeley
<b>Known for</b>	History Flow, Many Eyes, Treemap algorithms, Social Data Analysis
<b>Notable awards</b>	Gold award / ID Magazine Interactive Design (1999), Creative Capital grantee (2006), TR100 (2003)

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## Biography

Wattenberg grew up in Amherst, Massachusetts. He received an A.B. from Brown University in 1991, an M.S. from Stanford University in 1992, and Ph.D. in Mathematics from U.C. Berkeley in 1996.<sup>[4]</sup> From 1996 through 2002, he lived in New York City and worked for Dow Jones, on the

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personal finance and investing site SmartMoney.com. In 2002 he took a position at IBM's Thomas J. Watson Research Center, in its Cambridge, Massachusetts location; in 2004, he founded IBM Research's Visual Communication Lab.[5]

## Journalism

While at SmartMoney.com, Wattenberg focused on new forms of interactive web-based journalism. Early work in 1996-1997 ranged from service pieces, such as worksheets to guide financial decisions, to expository graphical narratives on subjects such as bond [yield curves](#). In 1998 Wattenberg created the Map of the Market, which visualized the stock price performance of hundreds of publicly traded companies. The Map was the first web-based [treemap](#) and was widely imitated.[6] Subsequently, Wattenberg started a research and development group at SmartMoney, which was responsible for interactive charts, graphs, and simulations, as well as a library of visualization components. Outside of his work at Dow Jones, Wattenberg is known for interactive visualizations that have introduced mass audiences to data sets ranging from [baby names](#)[7] to museum collections at NASA [4] and the [Smithsonian](#).[8]

## Visualization Research

### Collaborative Analysis & Collective Intelligence

Wattenberg, in partnership with [Fernanda Viégas](#) at IBM, has published widely on collective intelligence and the social use of data visualization. Their work with visualizations such as [History Flow](#) and [Chromogram](#) led to some of the earliest publications on the dynamics of Wikipedia, including the first scientific study of the repair of vandalism.[9][10]

Wattenberg is one of the founders of IBM's experimental [Many Eyes](#) web site, created in 2007 [11] which seeks to make visualization technology accessible to the public. In addition to broad uptake from individuals, the technology from Many Eyes has been used by nonprofits and news outlets such as the [New York Times Visualization Lab](#).

### Visualization Techniques & Theory

Wattenberg invented or co-invented many visualization techniques. The Map of the Market was based on a new algorithm for treemap layouts (see [Treemapping](#)). The Arc Diagram is a novel technique for visualizing structure in long sequences.[12] This technique has since been used by many other designers.[13] Wattenberg and Viégas together introduced several techniques for depicting text: in addition to the history flow technique described above, the two created such text visualizations as the [Word Tree](#)[14] and [Chromogram](#).[15]

## Artwork

As an artist, Wattenberg uses interactive graphics and visualization as expressive media. He has primarily worked on internet-accessible projects, but has also created installations, videos, and prints.

In the 1990s he began to work with information visualization as an artistic medium. For example, his *Shape of Song* series (1999–2002) depicted the form of musical compositions; this project exists online as well as in prints that have been exhibited in multiple venues.[16] *Starrynight* (1999), a collaboration with Alexander Galloway and Mark Tribe, provided a new form of social, visual navigation for an online discussion.[17] *Idealine* (2001), an interactive representation of the online art universe, was the first internet artwork commissioned by the Whitney Museum of American Art, as well as a very early example of an artwork that used "crowdsourcing" to gather data.[18] Wattenberg has also worked with [Golan Levin](#), contributing to the visualization technique used in *The Secret Lives of Numbers* (2002). [19] [20]

Wattenberg frequently works with Marek Walczak, with whom he formed a collaboration known as MW2MW.[21] A key theme of their work is the relationship between language and space. For example, *Apartment* took inspiration from the concept of a [memory palace](#), turning free-form text

[Short Story Criticism: Kleist, Heinrich von - George M. Martin \(essay date 1978\)](#)

### Reference

[Martin Luther King, Jr.](#)

[P.S. Longer Letter Later: For Further Reference](#)

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entered by a viewer into an architectural floorplan.<sup>[22]</sup> The piece has appeared in many versions, including online (2000), an installation at the Whitney Museum of American Art (2001) and in many other venues.<sup>[23]</sup> Other works explore the possibilities of interaction: the *Thinking Machine* series (2004–2008), for example, is based on a chess- playing program that attempts to best the viewer while displaying its own thinking process<sup>[24]</sup> .<sup>[25]</sup>

Since 2003, Wattenberg has collaborated with [Fernanda Viégas](#) to create interactive works that evoke the joy of "revelation".<sup>[26]</sup> They have used academic techniques such as history flow to create prints that have been shown in venues such as the New York Museum of Modern Art.<sup>[27]</sup> The two have also created purely artistic visualizations. For example, the *Fleshmap* series (2008–2009) portrays aspects of sensuality, and includes work on the web, video, and installations. For example, *Fleshmap: Touch* provides a collective view of erogenous zones,<sup>[28]</sup> while *Fleshmap: Listen* visualizes the language used to describe the body in song lyrics.<sup>[29]</sup>

## Publications

Key publications:

- 2007: Many Eyes: A Site for Visualization at Internet Scale. Fernanda B. Viégas, Martin Wattenberg, Frank van Ham, Jesse Kriss, Matt McKeon. IEEE Symposium on Information Visualization.
- 2005: Baby Names, Visualization, and Social Data Analysis Martin Wattenberg. IEEE Symposium on Information Visualization.
- 2004: Studying Cooperation and Conflict between Authors with history flow Visualizations. Fernanda B. Viégas, Martin Wattenberg, and Kushal Dave. ACM Conference on Computer-Human Interaction (CHI).
- 2002: Ordered and quantum treemaps: Making effective use of 2D space to display hierarchies Ben Bederson, Ben Shneiderman, and Martin Wattenberg. ACM Transactions on Graphics, Vol 21, No. 4.

## References

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2. ↑ "That was fast! — Visual Hint". Hint.fm. Retrieved 2010-09-04.
3. ↑ "Fernanda B. Viégas". Fernandaviegas.com. 2008-08-31. Retrieved 2010-09-04.
4. ↑ 4.0 4.1 Jana, Reena (June 2007). "IBM's Data-Visualization Champion". *BusinessWeek Online*.
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9. ↑ 2004: Studying Cooperation and Conflict between Authors with history flow Visualizations. Fernanda B. Viégas, Martin Wattenberg, and Kushal Dave. ACM Conference on Computer-Human Interaction (CHI)
10. ↑ Shirky, Clay (2008). *Here Comes Everybody*. Penguin.
11. ↑ Lines and Bubbles and Bars, Oh My! New Ways to Sift Data, Anne Eisenberg, the New York Times, August 30, 2008.
12. ↑ Arc Diagrams: Visualizing Structure in Strings, Martin Wattenberg. IEEE Symposium on Information Visualization, 2002.
13. ↑ Visual Complexity Gallery of Arc Diagrams, accessed Sept. 2, 2009.
14. ↑ The Word Tree: An Interactive Visual Concordance Martin Wattenberg, Fernanda B. Viégas. IEEE InfoVis 2008
15. ↑ Visualizing Activity on Wikipedia with Chromograms, Martin Wattenberg, Fernanda B. Viégas, and Kate Hollenbach. Interact 2007.

16. ↑ Reas, Casey; Ben (2007). *Processing: a programming handbook for visual designers and artists*. MIT Press.
17. ↑ Dodge, Martin; Kitchin (2007). *Atlas of Cyberspace*. Addison Wesley.
18. ↑ Whitney Museum Artport Idealine, 2001
19. ↑ *The Secret Lives of Numbers* (2002)
20. ↑ Bulajic, Viktorija Vesna (2007). *Database aesthetics: art in the age of information overflow*. University of Minnesota Press.
21. ↑ MW2MW home page
22. ↑ Blais, Joline; Ippolito, Jon (2006). *At the Edge of Art*. Thames and Hudson.
23. ↑ Altshuler, Bruce (2007). *Collecting the New: Museums and Contemporary Art*. Princeton University Press.
24. ↑ Kurzweil, Ray (2005). *The singularity is near: when humans transcend biology*. Penguin.
25. ↑ Adams, Randy; Gibson, Steve; Arisona, Stefan Muller (2008). *Transdisciplinary Digital Art: Sound, Vision and the New Screen: Digital Art*. Springer.
26. ↑ Revelatory Interfaces, online video of MIT lecture, 2004.
27. ↑ *Design and the Elastic Mind* (Exhibit at the New York Museum of Modern Art, February 24, 2008–May 12, 2008)
28. ↑ Inside squash: art and sport confined, Cate McQuaid, The Boston Globe, April 29, 2009.
29. ↑ *Body Parts In Song: From Hands To Eyes* NPR Weekend Edition, August 30, 2008.

## External links

- [Martin Wattenberg Personal home page for Wattenberg](#)
- [Academic publications listed on IBM's site.](#)
- [Many Eyes Experimental public visualization site.](#)
- [SmartMoney Map of the Market.](#)
- [History flow Project page for Wikipedia visualizations.](#)
- [Name Voyager Visualization of baby names.](#)
- [Fleshmap Site for the "Fleshmap" series of artworks.](#)
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