Ed H. Chi is a Distinguished Scientist at Google DeepMind, leading machine learning research teams working on large language models (LaMDA/Bard), neural recommendations, and reliable machine learning. With 39 patents and ~200 research articles, he is also known for research on user behavior in web and social media. As the Research Platform Lead, he helped launched Bard, a conversational AI experiment, and delivered significant improvements for YouTube, News, Ads, Google Play Store at Google with >660 product improvements since 2013.

Prior to Google, he was Area Manager and Principal Scientist at Xerox Palo Alto Research Center's Augmented Social Cognition Group in researching how social computing systems help groups of people to remember, think and reason. Ed earned his 3 degrees (B.S., M.S., and Ph.D.) in 6.5 years from University of Minnesota. Inducted as an ACM Fellow and into the CHI Academy, he also received a 20-year Test of Time award for research in information visualization. He has been featured and quoted in the press, including the Economist, Time Magazine, LA Times, and the Associated Press. An avid golfer, swimmer, photographer and snowboarder in his spare time, he also has a blackbelt in Taekwondo.

Ed H. Chi 紀懷新 Curriculum Vitae

email: chi@acm.org

http://www.edchi.net/

To lead world-class research on novel problems in machine learning, human-computer interaction, and social computing.

Research Interests

Machine Learning, Neural Recommender Systems, Human-Computer Interaction, Social Media, Intelligent User Interfaces, User Behavior Analytics, Information Visualization.

Professional Experience

Google Research / Google Brain

Apr 2021 -- Present: Distinguished Scientist and Sr. Lead in Google Brain.

- Leading 120-person research group in Machine Learning, Neural Recommendations, Reinforcement Learning, Dialog Systems, Reliable and Robust ML.

Oct 2017 -- Apr 2021: Principal Scientist and Team Lead in Google Brain.

- Leading a 70-person research team in Machine Learning and Neural Recommender research, focusing on Neural Modeling, Reinforcement Learning, Responsible ML, and Robust/Reliable ML.

May 2015 -- Oct 2017: Senior Staff Research Scientist and Team Lead.

- Led team in significant research and product launches in YouTube on (A) neural recurrent recommenders; (B) multi-task objective learning; (C) factorized deep retrieval; (D) diversification of recommendation results; (E) model fairness improvements.
- Led team in introducing: (A) significant search and discovery functionalities in Google Play search functionality that was highlighted at Google IO, and (B) introducing long-term engagement optimization to the Google Play recommendation system.

Feb 2011 -- May 2015: Staff Research Scientist and Tech Lead.

- ⓘ d a team of researchers in conducting research on social search, recommendation, machine learning, crowdsourcing.

- Launched product features such as G+ on friend suggestions, content recommendation, and personalization.
- Conducted research on social search and annotations with launched Google Search changes.
- Curated and Oversaw $2M+ of external Google grants to academic researchers in Social Research.

Xerox Palo Alto Research Center (PARC)

Apr 2007 -- Feb 2011: Area Manager and Principal Scientist, Augmented Social Cognition Area.

- Defined and led a group of Ph.D. researchers on Social Web and Web2.0 technologies that augmented a group's ability to remember, think, and reason.4/2005 -- 4/200Senior Research Scientist, Xerox' Palo Alto Research Center (PARC)
- Member of User Interface Research Group
- Led research in social computing, social and personalized search, electronic reading environments, eyetracking experiments.

Mar 1999 -- Apr 2007: Research Scientist, User Interface Research Area

- Research in Web Analysis algorithms, Information Visualization
- Leader of the Information Scent Project that studied the behavior of web surfers and applied the understanding to web analysis and web applications (co-managed 10 people).
- Mentored and supervised many summer interns

Jun 1998 -- Sep 1998, Summer Intern, User Interface Research Area.

- Mentor: Stuart K. Card, Peter Pirolli
- Designed and implemented a Web Analysis Visualization Spreadsheet.

Jun 1997 -- Dec 1997, Summer Intern and Consultant, User Interface Research Area.

- Mentor: Stuart K. Card, Peter Pirolli
- Participated and formulated a new design for visualizing evolving Web ecologies.
- Several inventions filed for patents, and designed 1997 Xerox PARC Intern Program T-Shirt

University of Minnesota

Mar 1997 -- Jun 1997, Instructor. Dept. of Computer Science.

- Lectured on an advanced 5000-level course in C++ and object-oriented design (70 students).
- Best Teaching Award

Sep 1994 -- Mar 1997, Jan 1998 -- Jun 1998, Sep 1998 -- Mar 1999, Research Assistant. Dept. of Computer Science.

- Advisor: Dr. John Riedl

Jun 1994 -- Sep 1994, Apprentice. Geometry Center.

- ⓘ pervisors: Dr. Silvio Levy, Dr. Richard McGehee

Jan 1994 -- Jun 1994, Undergrad Research Assistant, Dept. of Computer Science.

- Advisor: Dr. John Carlis

Oct 1993 -- Jun 1994, Research Programmer. Dept. of Cell Biology and Neuroanatomy.

- Supervisor: Dr. Ed Egelman

Sep 1993 -- Jun 1994, Computer Lab Consultant. Distributed Computing Services.

Jun 1993 -- July 1993, Teaching Assistant. Geometry Center.

- Supervisors: Dr. Brad Barber, Dr. Pat Hanrahan

Education

Ph.D., Computer and Information Science, Sep. 1996 - Mar. 1999, University of Minnesota.

- Thesis: "A Framework for Information Visualization Spreadsheets
- Advisor: Dr. John T. Riedl
- Area: Visualization, User Interfaces, Graphics
- Awarded 1998 University of Minnesota Graduate School Doctoral Dissertation Fellowship, Research Contribution Award 1998, Doctoral Dissertation Award 1998, Best Teaching Award 1997, Best Written Qualifying Exam 1996,
- GPA: 4.0

M.S., Computer Science with Graduate Minor in Scientific Computation, Sep. 1994 - Dec. 1996, University of Minnesota

- Area: Computation Molecular Biology with emphasis on Information Visualization
- Advisor: Dr. John T. Riedl
- GPA: 4.0

Bachelor of Computer Science with Minor in Mathematics, Sep. 1992 - June, 1994, University of Minnesota

- Summa Cum Laude with Highest Distinction in two year.
- GPA: 4.0

Minneapolis South High School, Sep. 1988 - June, 1992

- Valedictorian with Highest Distinction
- Attended University of Minnesota for College-level Classes from June 1989 to June 1992
- GPA: 4.08

Selected/Highly-Cited Publications

(complete list here)

Recommendation Systems

Minmin Chen, Alex Beutel, Paul Covington, Sagar Jain, Francois Belletti, Ed H. Chi. Top-K Off-Policy Correction for a REINFORCE Recommender System. ACM International Conference on Web Search and Data Mining, (WSDM), 2019. [arxiv] [ACM]

Alex Beutel, Jilin Chen, Tulsee Doshi, Hai Qian, Li Wei, Yi Wu, Lukasz Heldt, Zhe Zhao, Lichan Hong, Ed H. Chi, Cristos Goodrow. Fairness in Recommendation Ranking through Pairwise Comparisons. *KDD 2019*. [arxiv]

Alex Beutel, Paul Covington, Sagar Jain, Can Xu, Jia Li, Vince Gatto, Ed H. Chi. Latent Cross: Making Use of Context in Recurrent Recommender Systems. WSDM 2018.

Alex Beutel, Ed H. Chi, Zhiyuan Cheng, Hubert Pham, John Anderson. Beyond Globally Optimal: Focused Learning for Improved Recommendations. *WWW*, 2017. [Google]

Jilin Chen, Rowan Nairn, Les Nelson, Michael Bernstein, Ed H. Chi. Short and Tweet: Experiments on Recommending Content from Information Streams. In *Proceedings of the 28th International Conference on Human Factors in Computing Systems (CHI2010)*. April, 2010. Atlanta, GA. [slides]

Jilin Chen, Rowan Nairn, Ed H. Chi. Speak Little and Well: Recommending Conversations in Online Social Streams. In Proc. of CHI2011. Vancouver, Canada. [UMN]

Machine Learning

Tim Kraska, Alex Beutel, Ed H. Chi, Jeff Dean, Neoklis Polyzotis. The Case for Learned Index Structures. Dec. 2017. https://arxiv.org/abs/1712.01208

Romal Thoppilan, Daniel De Freitas, Jamie Hall, Noam Shazeer, Apoorv Kulshreshtha, Heng-Tze Cheng, Alicia Jin, Taylor Bos, Leslie Baker, Yu Du, YaGuang Li, Hongrae Lee, Huaixiu Steven Zheng, Amin Ghafouri, Marcelo Menegali, Yanping Huang, Maxim Krikun, Dmitry Lepikhin, James Qin, Dehao Chen, Yuanzhong Xu, Zhifeng Chen, Adam Roberts, Maarten Bosma, Vincent Zhao, Yanqi Zhou, Chung-Ching Chang, Igor Krivokon, Will Rusch, Marc Pickett, Pranesh Srinivasan, Laichee Man, Kathleen Meier-Hellstern, Meredith Ringel Morris, Tulsee Doshi, Renelito Delos Santos, Toju Duke, Johnny Soraker, Ben Zevenbergen, Vinodkumar Prabhakaran, Mark Diaz, Ben Hutchinson, Kristen Olson, Alejandra Molina, Erin Hoffman-John, Josh Lee, Lora Aroyo, Ravi Rajakumar, Alena Butryna, Matthew Lamm, Viktoriya Kuzmina, Joe Fenton, Aaron Cohen, Rachel Bernstein, Ray Kurzweil, Blaise Aguera-Arcas, Claire Cui, Marian Croak, Ed Chi, Quoc Le. (2022). LaMDA: Language Models for Dialog Applications. arXiv preprint arXiv:2201.08239.

Alex Beutel, Jilin Chen, Zhe Zhao, Ed H. Chi. Data Decisions and Theoretical Implications when Adversarially Learning Fair Representations. KDD FATML Workshop, 2017.

Jiaqi Ma, Zhe Zhao, Xinyang Yi, Jilin Chen, Lichan Hong, Ed H. Chi. Modeling Task Relationships in Multi-task Learning with Multi-gate Mixture-of-Experts. In Proc. of KDD 2018. [pdf]

Preethi Lahoti, Alex Beutel, Jilin Chen, Kang Lee, Flavien Prost, Nithum Thain, Xuezhi Wang, Ed H. Chi. Fairness without Demographics through Adversarially Reweighted Learning. NeurIPS, 2020. [Appendix and

Human-Computer Interactions: Crowdsourcing, UbiComp, Web Analytics, and InfoVis

Aniket Kittur, Ed H. Chi, Bongwon Suh. Crowdsourcing User Studies With Mechanical Turk. In *Proc. of the ACM Conference on Human-factors in Computing Systems (CHI2008)*, pp.453-456. ACM Press, 2008. Florence, Italy. (18% acceptance rate) UMN

Brynn Evans, Ed H. Chi. Towards a Model of Understanding Social Search. In *Proc. of Computer-Supported Cooperative Work (CSCW)*, pp. 485-494. ACM Press, 2008. San Diego, CA. [ACM]

Lichan Hong, Gregorio. Convertino, and Ed H. Chi. Language Matters in Twitter: A Large Scale Study. In Proc. of 2011 International AAAI Conference on Weblogs and Social Media (ICWSM'11). [AAAI]

Ed H. Chi. Introducing Wearable Force Sensors in Martial Arts. *IEEE Pervasive Computing*, Vol. 4, No. 3, pp. 47--53. July, 2005. IEEE Press.

Jeffrey Heer, Ed H. Chi. Separating the Swarm: Categorization Methods for User Access Sessions on the Web. In *Proc. of ACM CHI 2002 Conference on Human Factors in Computing Systems*, pp. 243--250. ACM Press, April 2002. Minneapolis, MN. (15% acceptance rate) UMN

Christopher Olston, Ed H. Chi. ScentTrails: Integrating Browsing and Searching on the Web. *ACM Transactions on Computer-Human Interaction*, Vol. 10, Part 3, pp. 177--197. Sept, 2003. ACM Press.

Ed H. Chi, John Riedl, Phillip Barry, Joseph Konstan. Principles for Information Visualization Spreadsheets. *IEEE Computer Graphics and Applications (Special Issue on Visualization)*, pp. 30--38. July/August, 1998. IEEE CS Press.

- SIGIR Industry Keynote, 2021. Beyond Being Accurate: Solving Real-World Recommendation Problems with Neural Modeling.
- WSDM 2020, From Missing Data to Boltzmann Distributions and Time Dynamics: The Statistical Physics of Recommendation
- KDD 2020 IRS workshop, Beyond Being Accurate: Solving Real-World Recommendation Problems with Neural Modeling.
- ICML 2020, ML4MD workshop, Beyond Being Accurate: Solving Real-World Recommendation Problems with Neural Modeling.
- RecSys RMSE workshop 2019, From Arrow's Impossibility Theorem to Multi-Stakeholder, Multi-task, and More Inclusive Recommendations.
- ICLIS conference 2019
- KDD2019. [Given as a two-part talk]
  - Offline Eval workshop, Unbiased Estimators and Missing Not At Random Problems.
  - Deep RL workshop, From Softmax to Reinforcement Learning: A Story of Pattern Exploration in Recommenders.
- WSDM2019 Workshop on Task Intelligence. Staying on Task vs. Exploration: Learning Long-Term Dependencies in User Event History.
- Google AI Taiwan, 2018.
- BIG2017 @ WWW2017. Optimizing for User Experience with Data Science and Machine Learning.
- DataScience. 11/2016. A Data Science Culture: Case Studies from Google.
- TAICHI, 8/2016. Optimizing User Experience in the Age of Machine Learning and Data Science. 在機器學習和資料科學的時代裡如何提升用戶體驗.
- ACM Intelligent User Interfaces. 4/2015, Blurring of the Boundary Between Interactive Search and Recommendation.
- UMAP User Modeling. 7/2015, User Modeling and the Blurring of the Boundary Between Interactive Search and Recommendation.
- IEEE Information Reuse. 8/2015
- HCIR 2013, Blurring of the Boundary between Search and Recommendation
- Korea HCI 2012, Model-Driven Research in Social Computing.
- CSCL 2011, Augmented Social Cognition: How Social Computing is Changing eLearning.
- Invited Talks at SIGMOD 2011, CIKM 2012, etc.

Awards Received

1. Inducted into ACM CHI Academy (2018)
2. IEEE InfoVis Test of Time Award (2018)
3. ACM Distinguished Scientist (2014)
4. PARC Outstanding Award (2009)
5. PARC Outstanding Performance Award (Feb 2008)
6. PARC Acorn Award for Outstanding Patents (2006)
7. PARC Outstanding Performance Award, Palo Alto Research Center (Feb 2005)
8. ISTL Special Recognition Award, Palo Alto Research Center (Feb 2004)
9. PARC Net New Revenue Award, Palo Alto Research Center (Feb 2004)
10. PARC Net New Revenue Award, Palo Alto Research Center (Feb 2003)
11. ISTL Special Recognition Award, Palo Alto Research Center (Jan 2003)
12. Outstanding Achievement Award, Stanford University TaeKwonDo Program (Spring 2001)
13. Outstanding Achievement Award, Xerox Palo Alto Research Center (May 2000)
14. University of Minnesota Doctoral Dissertation Fellowship (1998), and Supplemental Grant (October 1998)
15. Research Contribution Award, Computer Science Dept., University of Minnesota (1998)
16. Outstanding Scholarly Contribution Award, Computer Science Dept., University of Minnesota (June 1998)
17. Doctoral Dissertation Award, Computer Science Dept., University of Minnesota (1998)
18. ConSern Scholarship (1997)
19. Best Teaching Award, Computer Science Dept., University of Minnesota (1997)
20. Highest Distinction in Ph.D. Written Qualifying Exam Award, Computer Science Dept., University of Minnesota (1996)
21. Institute of Technology Dean's List (All Quarters during Undergraduate Degree)
22. Undergraduate Research Grant, University of Minnesota. (1994)
23. Cargill Scholarship, Computer Science Dept., University of Minnesota (1993)
24. Kiwanis Club College Scholarship. (1992)
25. Junior Achievement College Scholarship. (1992)

Mentorship of Students/Interns (chronological)

1. Francois Belletti, 2017, UCBerkeley
2. Konstantina Christakopoulou, 2017, UMN
3. Jiaqi Ma, 2017, UMich
4. Vikas Kumar, 2016, UMN
5. Vena Jia Li, 2016, UI Chicago
6. Alex Beutel, 2015, CMU
7. Amy X. Zhang, 2015, MIT
8. Shuo Chang, 2014 and 2015, UMN
9. Zhe Zhao, 2014 and 2015, UMich
10. Anant Bhardwaj, 2013-2014, MIT
11. Lydia Chilton, 2013, UW
12. Amit Sharma, 2013, Cornell
13. Karthik Subbian, 2013, UMN
14. Stephen Guo, 2013, Stanford
15. Victoria Sosik, 2013, Cornell
16. Roshanak Zilouchian, 2013, UIUC
17. Phil Adams, 2013, Cornell
18. Aaron Halfaker, 2013, UMN
19. Wesley Willett, 2012, UCBerkeley
20. Katrina Panovich, 2012, MIT
21. Scott Golder, 2012, CMU
22. Saleema Amershi, 2012, UW
23. Jeff Rzeszotarski, 2012, CMU
24. Chenhao Tan, 2012, Cornell
25. Aditi Muralidharan, 2011-2012, UCBerkeley
26. Chinmay Kulkarni, 2011, Stanford
27. Ben Lickly, 2011, UCBerkeley
28. Sanjay Kairam, 2011, Stanford
29. Jilin Chen, 2009 and 2010, University of Minnesota
30. Brent Hecht, 2010, Northwestern Univ.
31. Nicholas Kong, 2010, UCBerkeley
32. [illegible]n Hanrahan, 2010, Virginia Tech
33. Michael Bernstein, 2009, MIT

34. Bryan Chan, 2008, Stanford
35. Terrell Russell, 2008 RA, UNC
36. Brynn Evans, 2008 RA, UCSD
37. Aniket (Niki) Kittur, 2007, UCLA
38. Todd Mytkowicz, 2006, Univ. of Colorado
39. Aniket (Niki) Kittur, 2006, UCLA
40. Peter Lai, 2006 Undergraduate Intern, MIT
41. Tony Shyong Lam, 2005, Univ. of Minnesota
42. Eddie Ishak, 2005, Columbia University
43. Heather Hyunyoung Song, 2005, Univ. of Maryland, College Park
44. Fabio Gasparetti, 2004, Univ. of Rome Tre
45. Doantam Phan, 2003, Stanford
46. Cristian Cadar, 2003 Undergrad Intern, MIT
47. Ying Feng, 2002, Indiana U.
48. Jason Bayer, 2002 Undergrad Intern, UC Berkeley
49. Sean McNee, 2001, U. of Minn.
50. William Liu, 2001 Undergrad Intern, Cornell U.
51. Chris Olston, 2000, Stanford
52. Jeffrey Heer, 2000 Undergrad Intern, UC Berkeley
53. Kim Chen, 2000 Undergrad Intern, Stanford

1. UC Berkeley, HCI Class, Visual Cognition, Nov. 26, 2003.
2. Stanford University, CS 147 HCI Class, Visual Cognition. Hosted by Terry Winograd. Nov. 19, 2003
3. Stanford University, CS 147 HCI Class, Information Visualization. Hosted by Jan Borchers. November 27, 2002
4. Stanford University, CS 147 HCI Class, Information Visualization. Hosted by Terry Winograd. October 24, 2001
5. Stanford University, CS 147 HCI Class, Information Visualization. Hosted by Terry Winograd. October 23, 2000
6. Stanford University, Human Computer Interaction Seminar. Advantages of Information Visualization. Hosted by Terry Winograd. October 18, 1999
7. University of Minnesota, Computer Science Department. Lecturer (supervised 3 TAs), Spring, 1997.
   - Lectured on an advanced 5000-level course in C++ and object-oriented design (70 students).
   - Won Best Teaching Award
8. University of Minnesota, Scientific Computation Graduate Program, Information Visualization of Molecular Biology Data. Spring 1997.
9. University of Minnesota, Scientific Computation 8001 Parallel Scientific Computing. Computation Molecular Biology. Fall, 1995
10. University of Minnesota, Geometry Center. Genetic Sequence Information Visualization: Background and Practice. Summer 1993

Major Technical Artifacts and Systems

1. Spreadsheet for Visualization (1999)
2. DiscTree and TimeTube for Web visualization and analysis (1999)
3. LumberJack Web Log Analytics (2002)
4. Bloodhound Web Usability simulation (2002)
5. ScentTrails smart trails for web users (2003)
6. 3Book 3D book viewer with smart highlights and ScentIndex smart index system (2004)
7. TaeKwonDo wireless wearable force sensing body protector (2004)
8. Magitti context-aware mobile guide (2007)
9. WikiDashboard: Social Transparency for Wikis (2008)
10. SparTag.us: Social Tagging for paragraphs (2008)
11. MrTaggy: Tag-based Search Browser (2009)
12. ZeroZero88.com: Twitter News and Conversation Recommender (2009)
13. G+ Translate (2013)
14. G+ Friend Recommender using Triadic Clsoure (2013)
15. G+ Graph Analytics Platform (2014)
16. G+ What's Hot Content Recommender and G+ Personalization and Topic Modeling Module (2014, 2015)
17. Google Machine Learning Embedding Toolkit (2015)
18. Google Play App Store Engagement Recommender (2016)
19. Google Play App Store Faceted Search (2016)
20. YouTube Home Page Recommender User Engagement Improvements (2016), Diversification (2016)
21. YouTube Home Page Recommender with Sequence Model using RNNs (2017)
22. YouTube WatchNext Recommender with TensorFlow (2017)

1. Boing Boing. MrTaggy. June 30, 2009.
2. Wikipedia Weekly Podcast 30min Interview. Spring, 2009.
3. Slashdot. Tool Shows the Arguments Behind Wikipedia Entries. Feb. 8, 2009.
4. MIT Technology Review. Who's Messing with Wikipedia? MIT Press, Feb. 6, 2009.
5. World Journal. Social Websites have no boundries. Jan. 23, 2009
6. SF Chronicle. Wikimedia pegs future on education, not profit. Chris Cadelago. Aug. 24, 2008.
7. Slate.com. The Wisdom of the Chaperones: Digg, Wikipedia, and the Myth of Web2.0 Democracy. Chris Wilson. Feb. 22, 2008.
8. Coverage of WikiDashboard and Social Transparency in Wikipedia around September 2007:
   - TechPresident
   - Chronicle of Higher Education
   - Unit Structure
   - WashingtonPost
   - China Times
   - Wikipedia Weekly
   - ResearchBuzz
   - Wikipedia Signpost
9. USA Today, Internet suffering from information overload, Andrew Kantor. June 14, 2007.
10. Chicago Sun Times, Stop Interrupting Yourself, Kate N. Grossman. March 4, 2007.
11. WirtshaftWoche, Total Vernetzt, Thomas Kuhn, pp. 121-124, 126, 128. Sept, 25, 2006.
12. LA Times, High-Tech Sign Language Could Replace the Mouse May 31, 2006. (also covered by United Press International)
13. Christian Science Monitor, How the Web changes your reading habits June 23, 2005.
14. Technology Research News, Memory-like software aids reading May 4, 2005.
15. InformationWeek, The Future of Software: AI's Next Brain Wave April 25, 2005.
16. CNN International TV, and CNN.com, High-tech Blows for Martial Arts August 23, 2004.
17. CorrierEconomia, Tae kwon do Ci pensa Chi Un sensore per arbitrare July 19, 2004.
18. UK Register, Wi-Fi is big hit for Tae Kwon Do June 25, 2004.
19. BBC News, Technology Section, Martial arts lands wireless blow June 25, 2004.
20. Coverage also by: Investor's Business Daily, and The Feature.
21. MIT Technology Review, Technology Research News, Sensors Track Martial Arts Blows June 2, 2004.
22. MIT Technology Review, Technology Research News, Indexes Bolster eBook Search May 21, 2004.
23. Technology Research News, Search tool aids browsing March 10, 2004.

24. PC Magazine, PARC Research on Information Scent July 1, 2003.
25. Webreference.com, Book Review: Human Factors and Web Development, 2nd Ed. December 5, 2002.
26. Forrester Report, Building A Better Automotive Web Site. November, 2002.
27. Fall COMDEX 2002 Magazine, Understanding user interaction, key to improving Web info retrieval. Fall (November) 2002.
28. Computerworld, Conference Report: Usability and Web site success. Nov. 7, 2002
29. Computerworld, Digital Bloodhounds: Web Users Follow the 'Information Scent'. June 17, 2002
30. USA Today, High-tech quest for a user-friendly Web. Feb. 6, 2002
31. LA Times, Net Archive Turns Back 10 Billion Pages of Time. Thursday, October 25, 2001.
32. Information Week, Web Sites that Work. Aug. 27, 2001
33. Wired News, Hot on the Scent of Information Friday, June 8, 2001. Covered also by: ACM TechNews, June 11, 2001.
34. Information Week, Keep The (Online) Customer Satisfied. Monday, May 21, 2001.
35. CNET Radio, 910 AM on the dial in SF Bay Area. 2.45pm, Tuesday, May 15th, 2001, Host: Tracy Romine
36. Associated Press, May 13, 2001. Researchers try to make "scents" out of tangled Web. Coverage by:
    - San Francisco Chronicle, Wednesday, May 16, 2001
    - Sacramento Bee, Monday, May 14th, 2001
    - Palo Alto Daily, Monday, May 14th, 2001
    - San Francisco Gate, Monday, May 14th, 2001
    - Researchers Study Web Surfers, Excite News, Tuesday, May 15th, 2001
    - Scientists use instincts to cultivate the Web, CNET News, Tuesday, May 15th, 2001
    - RESEARCHERS TRY TO DETERMINE WEB SITE USABILITY: The Search For Surfers' Basic Instincts, Editor and Publisher Online, Tuesday, May 15th, 2001
    - Researchers try to make scents out of Web
    - South Florida Sun Sentinel, May 15th, 2001
    - Orlando Sentinel, May 15th, 2001
    - Researcher Study Web Surfers, ACM Tech News Service, May 16th, 2001
37. The Economist. Scents and Sensibility. April 26, 2001.
38. Investor Business Daily. Xerox Project Studies Ways People Use Web. March 16, 2001.
39. Time Magazine. Special Issue on Inventors and Inventions: Team Xerox December 4, 2000.
40. Ziff-Davis TV Network, Cable Television Channel on Technology. The Internet Archive. August, 2000
41. The Minnesota Daily, Minneapolis, Minnesota. Plants help scholars understand DNA. Feburary 4, 1997

Patents (Issued: 39)

1. US 9215286 Creating a social network based on an activity
2. US 9137190 System and method for content-based message distribution
3. US 8874577 System and method for triaging of information feeds
4. US 8732584 System and method for generating an information stream summary using a display metric
5. US 8725717 System and method for identifying topics for short text communications
6. US 8666979 Recommending interesting content using messages containing URLs
7. US 8656286 System and method for providing mixed-initiative curation of information within a shared repository
8. US 8606781 Systems and methods for personalized search
9. US 8504626 System and method for content tagging and distribution through email
10. US 8380743 System and method for supporting targeted sharing and early curation of information
11. US 8276060 System and method for annotating documents using a viewer
12. US 8275769 System and method for identifying users relevant to a topic of interest
13. US 8166056 System and method for searching annotated document collections
14. US 8140706 Systems and methods for identifying user types using multi-modal clustering and information scent
15. US 7882056 Method and system to predict and recommend future goal-oriented activity
16. US 7861186 Systems and methods for navigating page-oriented information assets
17. US 7779013 System and method for determining a quantitative measure of search efficiency of related web pages
18. US 7702611 Method for automatically performing conceptual highlighting in electronic text
19. US 7673019 System and method for determining a quantitative measure of qualitative usability of related Web pages
20. US 7577902 Systems and methods for annotating pages of a 3D electronic document
21. US 7260643 August 21, 2007. Ed H. Chi, Jeffrey M. Heer, Peter L. Pirolli. Systems and methods for identifying user types using multi-modal clustering and information scent.
22. US 7203899 April 10, 2007. Ed H. Chi, Peter Pirolli. Systems and Methods for Assessing User Success Rates of Accessing Information in a Collection of Contents
23. US 7069518B2 June 27, 2006. Stuart Card, Rich Gossweiler, Allison Woodruff, Jock Mackinlay, Lichan Hong, Ed H. Chi. Indexing Methods, Systems, and Computer Program Products for Virtual Three-Dimensional Books.
24. US 7043475B2 May 9, 2006. Jeffrey Heer, Ed H. Chi. Systems and Methods for Clustering User Sessions Using Multi-Modal Information Including Proximal Cue Information.
25. US 7043535B2 May 9, 2006. Ed H. Chi, Chris Olston. Systems and Methods for Combined Browsing and Seraching in a Document Collection Based on Information Scent.

26. US 7043702B2 May 9, 2006. Ed H. Chi, Petr Pirolli, James Pitkow. Method for Visualizing User Path Through a Website and a Path Associated Information Scent.
27. US 7028053B2 April 11, 2006. Ed H. Chi, Peter Pirolli. Apparatus and Methods for Accessing a Collection of Content Portions.
28. US 7017110B1 March 21, 2006. Ed H. Chi, Peter Pirolli, James E. Pitkow. System and Method for Inferring User Information Need in a hypermedia Linked Document Collection.
29. US 6941321 September 6, 2005. Hinrich Schuetze, Francine R. Chen, Peter L. Pirolli, James E. Pitkow, Ed H. Chi, Jun Li. System and method for identifying similarities among objects in a collection.
30. US 6922699 B2 July 26, 2005. Hinrich Schuetze, Francine R. Chen, Peter L. Pirolli, James E. Pitkow, Ed H. Chi, Jun Li, Ullas Gargi. System and Method for Quantitatively Representing Data Objects in Vector Space.
31. US 6907459 June 14, 2005. US20020143802 A1. Ed H. Chi, Kim Chen. Systems and methods for predicting usage of a web site using proximal cues.
32. US 6671711 Dec. 30, 2003, EP01108054.6-2201 March 29, 2001. System and method for Predicting Web User Flow by Determining Association Strength of Hypermedia Links
33. US 6598054 July 22, 2003. System and Methods for Clustering Data Objects in a Collection.
34. US 6567797 B1, May 20, 2003. Hinrich Schuetze, James E. Pitkow, Peter Pirolli, Ed H. Chi, Jun Li. System and Method for Providing Recommendations based on Multi-Modal User Clusters.
35. US 6564202, May 13, 2003. Hinrich Schuetze, James E. Pitkow, Peter Pirolli, Ed H. Chi, Jun Li. System and method for visually representing the contents of a multiple data object cluster.
36. US 6509898 B2 (Jan. 21, 2003), EP00950960A2, 10/20/1999. Ed H. Chi, Peter Pirolli, James Pitkow, Rich Gossweller, Jock Mackinlay, Stuart Card. Usage based methods of traversing and displaying generalized graph structures.
37. US 6496832 B2 2002: Visualization Spreadsheet. Ed H. Chi, John T. Riedl, Joseph A. Konston, Phillip J. Barry.
38. US 6369819 Apr. 2002, EP00950962A2, 10/20/1999. Ed H. Chi, James Pitkow, Peter Pirolli, Stuart Card, Jock Mackinlay, Rich Gossweiler. Methods for visualizing transformations among related series of graphs.
39. US 6151595 Nov. 2000, EP00950961A2, 10/20/1999. Methods for interactive visualization of spreading activation using time tubes and disk trees.