

# Bill Howe

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## Professional Preparation

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|---------------------------------|--------------|--|------|
| Georgia Institute of Technology | Atlanta, GA  | BS, Honors, Industrial and Systems Engineering | 1999 |
| Portland State University       | Portland, OR | PhD, Commendation, Computer Science            | 2006 |

## Appointments

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|--------------|---|
| 2016-present | Associate Professor, Information School, University of Washington   |
| 2016-present | Adjunct Associate Professor, Allen School of Computer Science & Engineering, University of Washington                                   |
| 2017-present | Adjunct Associate Professor, Electrical Engineering, University of Washington   |
| 2013-2016    | Founding Associate Director, eScience Institute, University of Washington   |
| 2012-2016    | Affiliate Faculty, Computer Science and Engineering, University of Washington   |
| 2009-2013    | Senior Scientist, eScience Institute, University of Washington  |
| 2006-2009    | Research Scientist, NSF Science and Technology Center for Coastal Margin Observation and Prediction, Oregon Health & Science University |
| 2001-2006    | Graduate Research Assistant, Portland State University  |
| 1999-2001    | Consultant, Deloitte Consulting, Microsoft, Schlumberger Inc., Siebel Systems.  |

## Products

### Products Most Closely Related to the Proposed Project

- [1] D. Moritz, C. Wang, G. Nelson, H. Lin, A. M. Smith, B. Howe, and J. Heer. Formalizing visualization design knowledge as constraints: Actionable and extensible models in draco. *IEEE Trans. Visualization & Comp. Graphics (Proc. InfoVis)*, 2019.
- [2] M. Grechkin, H. Poon, and B. Howe. Ezlearn: Exploiting organic supervision in large-scale data annotation. In *IJCAI*, 2018.
- [3] S. Jain, D. Moritz, B. Howe, and E. Lazowska. Sqlshare: Results from a multi-year sql-as-a-service experiment. In *Proceedings of the Special Interest Group on Management of Data (SIGMOD)*, 2016.
- [4] K. R. Y. Kwon, M. Balazinska, and B. Howe. Hadoops adolescence: An analysis of hadoop usage in scientific workloads. In *VLDB*, 2013.
- [5] Y. Bu, B. Howe, M. Balazinska, and M. Ernst. Haloop: Efficient iterative data processing on large clusters. In *Proc. of International Conf. on Very Large Databases (VLDB)*, 2010.

### Other Significant Products

- [6] K. Wongsuphasawat, D. Moritz, A. Anand, J. Mackinlay, B. Howe, and J. Heer. Voyager: Exploratory analysis via faceted browsing of visualization recommendations. *Visualization and Computer Graphics, IEEE Transactions on*, 22(1):649–658, 2016.

- [7] J. Hyrkas, S. Clayton, F. Ribalet, D. Halperin, E. V. Armbrust, and B. Howe. Scalable clustering algorithms for continuous environmental flow cytometry. *Bioinformatics*, 32(3):417–423, 2016.
- [8] S.-H. Bae and B. Howe. Gossipmap: a distributed community detection algorithm for billion-edge directed graphs. In *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis, Supercomputing 2015, Austin, TX, USA, November 15-20, 2015*, pages 27:1–27:12, 2015.
- [9] Y. Kwon, M. Balazinska, B. Howe, and J. Rolia. Skew-resistant parallel processing of feature-extracting scientific user-defined functions. In *Proc. of the ACM Symposium on Cloud Computing (SOCC 2010)*, June 2010.
- [10] B. Howe and D. Maier. Algebraic manipulation of scientific datasets. In *VLDB '04: Proceedings of the 30th International Conference on Very Large Data Bases*, Toronto, Ontario, CA, 2004.

## Synergistic Activities

**Organizational Leadership.** I served as Founding Associate Director of the UW eScience Institute (<http://escience.washington.edu>), leading hiring, operations, program development, outreach, and consulting in the sciences. I also Co-Founded Urban@UW (<http://urban.uw.edu>) and the Cascadia Urban Analytics Cooperative (<https://www.cascadiadata.org/>) working to improve collaborative research in the delivery of human services through data-driven decision-making. I also founded the UW Masters Degree in Data Science, leading curriculum development and organizational design.

**Data Science Curricula Development.** I led a certificate program in data science in 2011, designed and ran a coursera MOOC “Introduction to Data Science” with over 200,000 registrants and 20,000 earned certificates from 2013 forward, developed a new Introductory ”Data Programming” Course in Summer 2012, and founded the Masters Degree in Data Science.

**Awards and Honors.** Best Paper, InfoVis 2019; Best of VLDB 2004 and 2010 (selected for special issue); currently most-cited papers from VLDB 2010 and SIGMOD 2012; Two Jim Gray Seed Award from Microsoft Research in 2008 and 2010; Departmental dissertation award 2007, Portland State University.

**Professional Service** Area Chair, SIGMOD 2018-2019; Sponsorship Chair, SIGMOD 2020; Program Chair, eScience 2016; Tutorials Co-Chair, ICDE 2018; Industry Co-chair, ICDE 2017; Demo Co-chair, SSDBM 2013; Chair, HPCDB 2011/2012; XLDB Organizing Committee, 2011; Co-Chair, Workshop on Array Databases, 2011 (with Peter Baumann). I have regularly served on the program committee for PVLDB, SIGMOD, ICDE, and a number of other venues for the last decade.

**National Academy of the Sciences Roundtable on Post-Secondary Data Science Education.**