

**James D. Herbsleb**  
Professor of Computer Science  
Director, PhD Program in Societal Computing  
Institute for Software Research  
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## Coordinates

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## Employment Experience

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2002-present	Professor, Institute for Software Research, School of Computer Science, Carnegie Mellon University
1996-2002	Member of Technical Staff, Software Production Research Department, Bell Laboratories, Lucent Technologies
1994-96	Member of Technical Staff, Software Engineering Institute, Carnegie Mellon University
1991-93	Postdoctoral Research Fellow, University of Michigan (Gary Olson, advisor)
1992	Lecturer, Department of Psychology, University of Michigan
1988-91	Research and Teaching Assistantships, Department of Electrical Engineering and Computer Science, University of Michigan
1982-89	Associate Professor, Department of Psychology, Hillsdale College, Hillsdale, Michigan

## Education

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1991-93	Postdoctoral Research Fellow, University of Michigan, Gary Olson, advisor Collaboration and coordination in work teams
1991 M.S.	University of Michigan Computer Science
1984 Ph.D.	University of Nebraska Cognitive Social Psychology
1980 J.D.	University of Nebraska Joint Program in Law and Psychology
1976 B.A.	Monmouth College, Monmouth, Illinois Psychology and Economics

## Publications

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### Peer-Reviewed Journals

1. Pe-Than, E.P.P., Nolte, A., Filippova, A., Bird, C., Scallen, S., & Herbsleb, J. D. (2019). Designing Corporate Hackathons with a Purpose. *IEEE Software*, 36(1), 15-22.
2. Goyal, R., Ferreira, G., Kästner, C., & Herbsleb, J. (2018). Identifying unusual commits on GitHub. *Journal of Software: Evolution and Process*, 30(1).
3. Daniel, S. L., Maruping, L. M., Cataldo, M., & Herbsleb, J. (2018). The Impact of Ideology Misfit on Open Source Software Communities and Companies. *MIS Quarterly*, 42(4), 1069-1096.
4. Towne, W.B., Rose, C.P., & Herbsleb, J.D. (2016). Measuring Similarity Similarly: LDA and Human Perception. *ACM Transactions on Intelligent Systems and Technology (TIST)*, 8, 1, article 7.
5. Herbsleb, J., Kästner, C. and Bogart, C. Intelligently Transparent Software Ecosystems. *IEEE Software*, 33, 1 (2016), 89-96.
6. Howison, J., Deelman, E., McLennan, M. J., da Silva, R. F., & Herbsleb, J. D. (2015). Understanding the scientific software ecosystem and its impact: current and future measures. *Research Evaluation*, 2015, 1-17.
7. Trainer, E. H., Chaihirunkarn, C., & Herbsleb, J. D. (2014). The Big Effects of Short-term Efforts: Mentorship and Code Integration in Open Source Scientific Software. *Journal of Open Research Software*, 2(1), e18.
8. Cataldo, M., & Herbsleb, J. D. (2013). Coordination Breakdowns and Their Impact on Development Productivity and Software Failures. *IEEE Transactions on Software Engineering* 39(3), 343-360.
9. Dabbish, L., Stuart, C., Tsay, J., & Herbsleb, J. (2013). Leveraging Transparency. *IEEE Software*, 30(1), 37-43.
10. Towne, W.B. & Herbsleb, J.D. (2012). Design Considerations for Online Deliberation Systems. *Journal of Information Technology & Politics*, 9 (1), 97-115.
11. Dabbish, L., Towne, B., Diesner, J. and Herbsleb, J. (2011). Construction of association networks from communication in teams working on complex projects. *Statistical Analysis and Data Mining*, 4 (5), 547-563.
12. Gurbani, V.K., Garvert, A., & Herbsleb, J.D. (2010). Managing a Corporate Open Source Software Asset. *Communications of the ACM*, 53, 2, pp. 155-159.
13. Cataldo, M., Mockus, A., Roberts, J.A., & Herbsleb, J.D. (2009). Software Dependencies, Work Dependencies, and Their Impact on Failures. *IEEE Transactions on Software Engineering*, 99, 864-878.
14. Espinosa, A., Slaughter, S., Kraut, R., & Herbsleb, J. (2007). Familiarity, Complexity and Team Performance in Geographically Distributed Software Development. *Organization Science*, July-August, 18, pp. 613 – 630.

15. Espinosa, J. A., Slaughter, S. A., Kraut, R. E., & Herbsleb, J. D. (2007). Team Knowledge and Coordination in Geographically Distributed Software Development. *Journal of Management Information Systems*, 24, 1, pp. 5 – 12.
16. Herbsleb, J.D. & Mockus, A. (2003). An Empirical Study of Speed and Communication in Globally-Distributed Software Development. *IEEE Transactions on Software Engineering*, 29, 3, pp. 1-14.
17. Mockus, A., Fielding, R., & Herbsleb, J.D. (2002). Two Case Studies of Open Source Software Development: Apache and Mozilla. *ACM Transactions on Software Engineering and Methodology*, 11, 3, pp. 309-346.
18. Colbert, R. O., Compton, D. S., Hackbarth, R. L., Herbsleb, J. D., Hoadley, L. A., & Wills, G. J. (2001). Advanced Services: Changing How We Communicate. *Bell Labs Technical Journal*, 6(1), Jan.-Jun. 2001, pp. 211-228.
19. Herbsleb, J.D. & Moitra, D. Global Software Development. *IEEE Software*, March/April 2001, pp. 16-20.
20. El Emam, K., Goldenson, D., McCurley, J., Herbsleb, J. D. (2001). Modeling the Likelihood of Software Process Improvement: An Exploratory Study. *Empirical Software Engineering*, 6, 3, pp. 207-229.
21. Herbsleb, J. D. & Grinter, R. E. (1999). Architectures, Coordination, and Distance: Conway's Law and Beyond. *IEEE Software*, Sept/Oct 1999, pp. 63-70.
22. Herbsleb, J. D., & Kuwana, E. (1998). An Empirical Study of Information Needs in Collaborative Software Design. *Journal of the Information Processing Society of Japan*, 39, 3, 1998.
23. Herbsleb, J. D., Zubrow, D., Goldenson, D., Hayes, W., & Paulk, M. (1997). Software Quality and the Capability Maturity Model. *Communications of the ACM*, 40, 30-40.
24. Herbsleb, J. D., Klein, H., Olson, G. M., Brunner, H., Olson, J. S., and Harding, J. (1995). Object-oriented analysis and design in software project teams. *Human Computer Interaction*, 10, 249-292.
25. Olson, G. M., Herbsleb, J. D., and Rueter, H. H. (1994). Characterizing the sequential structure of interactive behaviors through statistical and grammatical techniques. *Human Computer Interaction*, 9, 427-472.
26. Herbsleb, J.D., Sales, B.D., Overcast, T.D. (1985). Challenging Licensure and Certification, *American Psychologist*, Vol. 40, pp. 1165-1178.

### **Peer-Reviewed Conferences**

27. Valiev, M., Vasilescu, B., & Herbsleb, J. (2018). Ecosystem-level determinants of sustained activity in open-source projects: a case study of the PyPI ecosystem. *ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering ESEC/FSE*, 644-655.
28. Nolte, A., Pe-Than, E. P. P., Filippova, A., Bird, C., Scallen, S., & Herbsleb, J. D. (2018). You Hacked and Now What?:-Exploring Outcomes of a Corporate Hackathon. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW), 129.

29. Filippova, A., Trainer, E., & Herbsleb, J. D. (2017). From diversity by numbers to diversity as process: supporting inclusiveness in software development teams with brainstorming. In Proceedings, *International Conference on Software Engineering*. Buenos Aires, Argentina, pp. 152-163.
30. Trainer, E. H., Kalyanasundaram, A., & Herbsleb, J. D. (2017). e-mentoring for software engineering: a socio-technical perspective. *Proceedings of the 39th International Conference on Software Engineering: Software Engineering and Education Track*, pp. 107-116.
31. Towne, W. B., Rosé, C. P., & Herbsleb, J. D. (2017). Conflict in Comments: Learning but Lowering Perceptions, With Limits. Proceedings of the 2017 *CHI Conference on Human Factors in Computing Systems*, pp. 655-666.
32. Dwivedi, V., Herbsleb, J. D., & Garlan, D. (2017). What Ails End-User Composition: A Cross-Domain Qualitative Study. Paper presented at the *International Symposium on End User Development*, pp. 66-83.
33. Bogart, C., Kästner, C., Herbsleb, J. and Thung, F. (2016). How to Break an API: Cost Negotiation and Community Values in Three Software Ecosystems. In Proceedings, *Foundations of Software Engineering*, Seattle, WA.
34. Trainer, E. H., Kalyanasundaram, A., Chaihirunkarn, C., & Herbsleb, J. D. (2016). How to Hackathon: Socio-technical Tradeoffs in Brief, Intensive Collocation. In Proceedings, *ACM Conference on Computer-Supported Cooperative Work and Social Computing*. San Francisco, CA.
35. Towne, W. B., Rosé, C. P., & Herbsleb, J. D. (2016). The Key Role of Navigation in Online Challenge Platforms. Paper presented at *Collective Intelligence*, New York, NY. Retrieved from <https://sites.google.com/a/stern.nyu.edu/collective-intelligence-conference/>.
36. Wen, M., Maki, K., Wang, X., Dow, S., Herbsleb, J. D., & Rosé, C. P. (2016). Transactivity as a Predictor of Future Collaborative Knowledge Integration in Team-Based Learning in Online Courses. Proceedings of *Educational Data Mining*, pp. 533-538.
37. Sunshine, J., Herbsleb, J. D., & Aldrich, J. (2015). Searching the state space: a qualitative study of API protocol usability, *IEEE 23rd International Conference on Program Comprehension* (pp. 82-93).
38. Trainer, E. H., Chaihirunkarn, C., Kalyanasundaram, A., & Herbsleb, J. (2015). From Personal Tool to Community Resource: What's the Extra Work and Who Will Do It? *ACM Conference on Computer-Supported Cooperative Work and Social Computing* (pp. 417-430). Vancouver, BC, Canada.
39. Tsay, J., Dabbish, L., & Herbsleb, J. (2014). Let's Talk About It: Evaluating Contributions Through Discussion in GitHub. *ACM International Symposium on Foundations of Software Engineering (FSE)*, Hong Kong.
40. Trainer, E.H., Chaihirunkarn, C., Kalyanasundaram, A., Herbsleb, J.D. (2014). Community Code Engagements: Summer of Code & Hackathons for Community Building in Scientific Software. *ACM Conference on Supporting Groupwork (GROUP)*, Sanibel Island, FL.

41. Tsay, J., Dabbish, L., & Herbsleb, J. (2014). Influence of Social and Technical Factors for Evaluating Contribution in GitHub. In proceedings, *ACM/IEEE International Conference on Software Engineering (ICSE)*, (pp. 356-366), Hyderabad, India.
42. Sunshine, J., Herbsleb, J.D., & Aldrich, J. (2014). Structuring Documentation to Support State Search: A Laboratory Experiment about Protocol Programming. In proceedings, *ECOOOP*.
43. Howison, J., & Herbsleb, J. D. (2013). Incentives and integration in scientific software production, *ACM Conference on Computer-Supported Cooperative Work* (pp. 459-470). San Antonio, TX.
44. Marlow, J., Dabbish, L., & Herbsleb, J. (2013). Impression formation in online peer production: activity traces and personal profiles in github, *Proceedings of the Conference on Computer Supported Cooperative Work* (pp. 117-128). San Antonio, TX.
45. Towne, W. B., Kittur, A., Kinnaird, P., & Herbsleb, J. (2013). Your process is showing: controversy management and perceived quality in Wikipedia, *Conference on Computer Supported Cooperative Work* (pp. 1059-1068). San Antonio, TX.
46. Dabbish, L., Stuart, C., Tsay, J. and Herbsleb, J. (2012). Social Coding in GitHub: Transparency and Collaboration in an Open Software Repository. *ACM Conference on Computer-Supported Cooperative Work*, Seattle, WA, 1277-1286.
47. Daniel, S., Maruping, L., Cataldo, M., Herbsleb, J. (2012). When Cultures Clash: Participation in Open Source Communities and Its Implications For Organizational Commitment. *International Conference on Information Systems*, Shanghai, China.
48. Ramasubbu, N., Cataldo, M., Balan, R. K. and Herbsleb, J. (2011). Configuring Global Software Teams: A Multi-Company Analysis of Productivity, Quality, and Profits. In Proceedings, *International Conference on Software Engineering*, Honolulu, HI, pp. 261-270. Received *ACM Distinguished Paper Award*.
49. Cataldo, M. and Herbsleb, J. D. (2011). Factors leading to integration failures in global feature-oriented development: an empirical analysis. In Proceedings, *International Conference on Software Engineering*, Honolulu, HI, pp. 161-170.
50. Howison, J. and Herbsleb, J. D. (2011). Scientific software production: incentives and collaboration. *ACM Conference on Computer-Supported Collaborative Work* Hangzhou, China, pp. 513-522.
51. Dabbish, L.A., Wagstrom, P., Sarma, A., & Herbsleb, J.D. (2010). Coordination in Innovative Design and Engineering: Observations from a Lunar Robotics Project. In Proceedings, *ACM International Conference on Supporting Group Work*, Sanibel Island, FL, pp. 225-234.
52. Wagstrom, P., Herbsleb, J.D., & Carley, K. (2010). Communication, Team Performance, and the Individual: Bridging Technical Dependencies. *Academy of Management Conference*. Received *Best Paper Award*.

53. Wagstrom, P., Mockus, A., Herbsleb, J.D., & Kraut, R.E. (2010). The Impact of Commercial Organizations on Volunteer Participation in an Online Community. *Academy of Management Conference*.
54. Dekel, U. & Herbsleb, J.D. (2009). Improving API Documentation Usability with Knowledge Pushing. In Proceedings, *International Conference on Software Engineering*, Vancouver, Canada, May 16-24, pp. 320-330.
55. Sarma, A., Maccherone, L., Wagstrom, P., & Herbsleb, J. (2009). Tesseract: Interactive Visual Exploration of Socio-Technical Relationships in Software Development. In Proceedings, *International Conference on Software Engineering*, Vancouver, Canada, May 16-24, pp. 23-33.
56. Cataldo, M. & Herbsleb, J.D. (2008). Communication networks in geographically distributed software development. In Proceedings, *ACM Conference on Computer-Supported Cooperative Work*, San Diego, CA, Nov. 8-12, pp. 579-588.
57. Dekel, U. & Herbsleb, J.D. (2008). Pushing relevant artifact annotations in collaborative software development. In Proceedings, *ACM Conference on Computer-Supported Cooperative Work*, San Diego, CA, Nov. 8-12, pp. 1-4.
58. Cataldo, M., Herbsleb, J.D., Carley, K.M. (2008). Socio-technical congruence: a framework for assessing the impact of technical and work dependencies on software development productivity. In Proceedings, *Second ACM-IEEE International Symposium on Empirical Software Engineering and Measurement*, Kaiserslautern, Germany, Oct. 9-10, pp. 2-11. Received *ACM Distinguished Paper* award.
59. Cataldo, M., Bass, M., Herbsleb, J.D., Bass, L. (2007). On Coordination Mechanisms in Global Software Development. *International Conference on Global Software Engineering*, Munich, Germany, August 27-30, pp. 71-80.
60. Lescher, C., Bass, M., Herbsleb J.D. (2007). Collaboration in Global Software Projects at Siemens: An Experience Report. *International Conference on Global Software Engineering*, Munich, Germany, August 27-30, pp. 33-39.
61. LaToza, T.D., Garlan D., Herbsleb J.D., & Myers, B.A. (2007). Program Comprehension as Fact-Finding, in proceedings of the *European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering*, Dubrovnik, Croatia, September 3-7, pp. 361-370.
62. Dekel, U. & Herbsleb, J.D. (2007). Notation and Representation in Collaborative Object-Oriented Design, in Proceedings, *OOPSLA 2007*, pp. 261-280.
63. Bass, M., Herbsleb, J., Cataldo, M., Bass, L. Architectural Misalignment: An Experience Report. In Proceedings, *Sixth Working IEEE/IFIP Conference on Software Architecture*. Mumbai, India, January 6-9, 2007.
64. Ankolekar, A., Sycara, K., Herbsleb, J., Kraut, R., & Welty, C. (2006). Supporting online problem-solving communities with the semantic web. In Proceedings, *International World Wide Web Conference*, Edinburgh, Scotland, pp. 575-584.

65. Balan, R.K., Gergle, D., Satyanarayanan, M., & Herbsleb, J. (2006). Simplifying Cyber Foraging for Mobile Devices. In Proceedings, *ACM International Conference on Mobile Systems, Applications, and Services*. San Juan, Puerto Rico, June 11-14, pp. 272-285.
66. Cataldo, M., Wagstrom, P., Herbsleb, J.D., Carley, K. (2006). Identification of coordination requirements: Implications for the design of collaboration and awareness tools. In Proceedings, *ACM Conference on Computer-Supported Cooperative Work*, Banff Canada, pp. 353-362. Received *Best Paper Award*.
67. Herbsleb, J.D., Mockus, A., Roberts, J.A. (2006). Collaboration in Software Engineering Projects: A Theory of Coordination. *International Conference on Information Systems*, Milwaukee, WI. Received *Best in Track Award*.
68. Mullick, N., Bass, M., Houda, Z., Sangwan, R., Paulish, D., Cataldo, M., Herbsleb, J., Bass, L. (2006). Siemens Global Studio Project: Experiences adopting an integrated GSD infrastructure. *IEEE International Conference on Global Software Engineering*.
69. Gurbani, V.K., Garvert, A., Herbsleb J.D. A Case Study of a Corporate Open Source Development Model. (2006). In Proceedings, *International Conference on Software Engineering*, Shanghai, China, May 20-25, 2006, pp. 472-481.
70. Li, P.L., Herbsleb, J., Shaw, M., Robinson, B. (2006). Experiences and Results from Initiating Field Defect Prediction and Product Test Prioritization Efforts at ABB Inc. In *Proceedings of the International Conference on Software Engineering*, Shanghai, China, May 20-25, pp. 413-423.
71. Espinosa, A., Slaughter, S. A., Herbsleb, J. D. and Kraut, R. E. (2005). Coordination Mechanisms in Globally Distributed Software Development. In *Proceedings of the First International Conference on Management of Globally Distributed Work*, Bangalore, India.
72. Li, P.L, Herbsleb, J., Shaw, M. "Forecasting Field Defect Rates Using a Combined Time-based and Metrics-based Approach: a Case Study of OpenBSD". In *Proceedings of the 16<sup>th</sup> IEEE International Symposium on Software Reliability Engineering*, Nov 2005.
73. Herbsleb, J., Paulish, D.J., Bass, M. (2005). Global Software Development at Siemens: Experience from Nine Projects. *International Conference on Software Engineering (ICSE)*, pp. 524 - 533, St. Louis, MO, May 15-21, 2005.
74. Wagstrom, P., Herbsleb, J., Carley, K. A Social Network Approach to Free/Open Source Software Simulation. To appear, the *First International Conference on Open Source Systems*, Genoa, Italy, July 11 - 15, 2005.
75. Li, P. L., Herbsleb, J., Shaw, M. Finding Predictors of Field Defects for Open Source Software Systems in Commonly Available Data Sources: a Case Study of OpenBSD (2005). To appear, *IEEE International Software Metrics Symposium*, 19-22 September, Como, Italy.
76. Li, P., Shaw, M., Herbsleb J., Ray, B., & Santhanam, P. (2004). Empirical Evaluation of Defect Projection Models for Widely-deployed Production Software Systems. To appear, *ACM Symposium on the Foundations of Software Engineering (FSE)*.

77. Herbsleb, J.D. & Mockus, A. (2003). Formulation and Preliminary Test of an Empirical Theory of Coordination in Software Engineering. In proceedings, *ACM Symposium on the Foundations of Software Engineering (FSE)*, Helsinki, Finland, pp. 112-121.
78. Espinosa, J. A., Kraut, R.E., Slaughter, S. A., Lerch, J. F., Herbsleb, J. D., Mockus, A. Shared mental models, familiarity, and coordination: A multi-method study of distributed software teams (2002). *International Conference on Information Systems (ICIS)*, Barcelona, Spain, December 15th – 18th, pp. 425-433.
79. Handel, M. & Herbsleb, J.D. (2002). What is Chat Doing in the Workplace? Proceedings of *ACM Conference on Computer-Supported Cooperative Work (CSCW)*, New Orleans, LA, pp. 1-10.
80. Herbsleb, J.D., Atkins, D.L., Boyer, D.G., Handel, M., & Finholt, T.A. (2002). Introducing Instant Messaging and Chat into the Workplace. In proceedings of *ACM Conference on Computer-Human Interaction (CHI)*, pages 171-178, Minneapolis, MN, April 20-25.
81. Mockus, A. & Herbsleb, J.D. Expertise Browser: A Quantitative Approach to Identifying Expertise (2002). In proceedings of *International Conference on Software Engineering (ICSE)*, pp. 503-512, Orlando, FL, May 19-25.
82. Herbsleb, J.D., Mockus, A., Finholt, T.A., & Grinter, R.E. (2001). An Empirical Study of Global Software Development: Distance and Speed. In proceedings, *International Conference on Software Engineering (ICSE)*, pages 81-90, Toronto, Canada, May 15-18. *Honorable Mention, Most Influential Paper Award, ICSE 2011.*
83. Siy, H.P., Mockus, A, Herbsleb, J.D., Krishnan, M., and Tucker, G. T. (2001). Making the software factory work: Lessons from a decade of experience. In proceedings, *Metrics 2001: Seventh International Symposium on Software Metrics*, pages 317-327, London, England, April 4-6.
84. Mockus, A. & Herbsleb, J.D. Challenges of global software development. (2001). In proceedings, *Metrics 2001: Seventh International Symposium on Software Metrics*, pages 182-184, London, England, April 4-6.
85. Espinosa, J. A., Kraut, R.E., Slaughter, S. A., Lerch, J. F., Herbsleb, J. D., Mockus, A. (2001). Shared Mental Models and Coordination in Large-Scale, Distributed Software Development. To appear in proceedings, *International Conference on Information Systems (ICIS)*, New Orleans, LA, December 16- 19.
86. Godefroid, P., Herbsleb, J.D., Jagadeesan, L.J., Li, D. (2000). Ensuring Privacy in Presence Awareness Systems: An Automated Verification Approach. In proceedings, *ACM Conference on Computer-Supported Cooperative Work (CSCW)*, pages 59-68, Philadelphia, PA, Dec. 2-7.
87. Herbsleb, J.D., Mockus, A., Finholt, T.A., & Grinter, R.E. (2000). Distance, Dependencies, and Delay in a Global Collaboration. In Proceedings, *ACM Conference on Computer-Supported Cooperative Work (CSCW)*, pages 319-328, Philadelphia, PA, Dec. 2-7.
88. Mockus, A., Fielding, R.T., & Herbsleb, J. (2000). A Case Study of Open Source Software Development: The Apache Server. In proceedings, *International Conference on Software*



*Engineering* (ICSE), pages 263-272, Limerick Ireland, June 5-7. *Most Influential Paper Award, ICSE 2010.*

89. Herbsleb, J. D. & Grinter, R. E. (1999). Splitting the Organization and Integrating the Code: Conway's Law Revisited. In proceedings, *International Conference on Software Engineering* (ICSE), pages 85-95, Los Angeles, CA, May 16-22.
90. Herbsleb, J. D. Metaphorical Representation in Collaborative Software Engineering. (1999). In proceedings, *International Joint Conference on Work Activities, Coordination, and Collaboration*, pages 117-125, San Francisco, CA, February 22-25.
91. Grinter, R. E., Herbsleb, J. D., & Perry, D. E. (1999). The Geography of Coordination: Dealing with Distance in R&D Work. In proceedings, *International Conference on Supporting Group Work*, Phoenix, AZ, November 14-17.
92. Herbsleb, J. D. & Grinter, R. E. (1998). Conceptual Simplicity Meets Organizational Complexity: Case Study of a Corporate Metrics Program. In proceedings, *International Conference on Software Engineering* (ICSE), pages 271-280, Kyoto, Japan, April 19-25.
93. Herbsleb, J. D. & Goldenson, D. (1996). A systematic survey of CMM experience and results. In proceedings, *International Conference on Software Engineering* (ICSE), pages 323-330, Berlin, Germany, March 25-30.
94. Herbsleb, J. D., and Kuwana, E. (1993). Preserving knowledge in design projects: What designers need to know. In proceedings, *Human Factors in Computing Systems* (CHI), pages 7-14, Amsterdam, The Netherlands, April 24-29.
95. Kuwana, E. and Herbsleb, J.D. (1993). Representing knowledge in requirements engineering: An empirical study of what software engineers need to know. In proceedings, *IEEE International Symposium on Requirements Engineering*, p. 273-276, San Diego, CA, January 4-6.

## **Book Chapters**

96. Olson, G. M., Olson, J. S., Storrøsten, M., Carter, M., Herbsleb, J., and Rueter, H. (1996). The structure of activity during design meetings. In T. Moran & J. Carroll (Eds.) *Design Rationale: Concepts, Techniques, and Use*. Lawrence Erlbaum: Mahwah, NJ. pp. 217-239.
97. Goldenson, D.R., El Emam, K., Herbsleb, J., and Deephouse, C. (1998) Empirical studies of software process assessment methods, in T. P. Rout (ed.) *Software Process Assessment and Improvement*, Southampton, UK: Wit Press, 1998.

## **Keynote addresses, Invited Talks**

98. Herbsleb, J. (2016) Building a Theory of Coordination: Why and How. Keynote, International Symposium on the Foundations of Software Engineering, Seattle, WA, Nov. 17, 2016.
99. Herbsleb, J. (2016) Process in Action, Process in Context. Keynote, International Conference on Software and System Processes, Austin, TX, May 14, 2016.
100. Herbsleb, J. (2016) The Scientific Discipline of Societal Computing: Shaping the Digital Landscape. Keynote, Software Engineering in Society Track, International Conference on Software Engineering, Austin, TX, May 18, 2016.

101. Herbsleb, J. (2015) Socio-Technical Coordination: How Millions of People use Transparency to Collaborate on Millions of Interdependent Projects on GitHub. Informatics Seminar Series, University of California – Irvine, February 13, 2016.
102. Herbsleb, J. (2015) Socio-Technical Coordination: How Millions of People use Transparency to Collaborate on Millions of Interdependent Projects on GitHub. Michigan Interactive and Social Computing Lecture Series, University of Michigan, April 28, 2015.
103. Herbsleb, J. (2015) Socio-Technical Coordination: How Millions of People use Transparency to Collaborate on Millions of Interdependent Projects on GitHub. Distinguished Lecture, Rochester Institute of Technology, November 5, 2015.
104. Herbsleb, J. (2014) Socio-Technical Coordination. Invited talk, Georgia Institute of Technology, Atlanta, Georgia, January 21, 2015.
105. Herbsleb, J. (2014) Socio-Technical Coordination. Keynote, International Conference on Software Engineering, Hyderabad, India, June 4, 2014.
106. Herbsleb, J. (2014). Coordination, Congruence, Transparency. Invited Talk, University of Texas at Austin ECE Seminar, April 16, 2014.
107. Herbsleb, J. (2013). Software Ecosystems and Science. Keynote, SI2 PI Meeting (National Science Foundation, Software Infrastructure for Sustained Innovation Program), Arlington, VA, January 18, 2013.
108. Herbsleb, J. (2012). Transparency in Online Environments. Invited talk at IBM TJ Watson Research Center, December 7, 2012.
109. Herbsleb, J. (2012). Communication Networks and Collaboration Transparency. Invited Talk, Fidelity Investments Extended IT Leadership Team. Boston, MA, May 16, 2012.
110. Herbsleb, J. (2011). From openness to transparency: The role of social media in open source ecosystems. Keynote talk at International Conference on Open Source Systems (OSS 2011), Salvador, Brazil, October 6, 2011.
111. Herbsleb, J. (2011). Architectural knowledge and organizational context: The case for socio-technical styles. Keynote talk at the Workshop on Sharing and Reusing Architectural Knowledge, ICSE 2011, Honolulu, HI, May 24, 2011.
112. Herbsleb, J. (2011). Building a software ecosystem. Keynote talk at iDash Workshop: Designing an Ecosystem for Clinical NLP, UC San Diego, May 2, 2011.
113. Herbsleb, J. (2011). Talking about concerns. Invited talk at *Aspect-Oriented Software Development Conference*, Recife, Brazil.
114. Herbsleb, J. (2011). Specialization, Scale, and Socio-Technical Ecosystems. Distinguished Lecture, Brigham Young University, March 3, 2011, Provo, Utah.
115. Herbsleb, J. (2010). Replication and Robust Results. Keynote presentation at *Workshop on Replication in Software Engineering*, May 4, Capetown, South Africa.
116. Herbsleb, J., (2010). MSR: Mining for Scientific Results? Keynote presentation at *Mining Software Repositories*, May 2, 2010, Capetown, South Africa.

117. Herbsleb, J. (2010). Socio-Technical Ecosystems. Invited talk at the Pittsburgh Technology Meet-Up, December 9, 2010, Pittsburgh, PA.
118. Herbsleb, J. (2010). Sociotechnical Ecosystems. IFIP WG 2.9, San Diego, February 10, 2010. (Invited presentation).
119. Herbsleb, J. (2009). On the Diminishing Prospects for an Engineering Discipline of Requirements. Keynote Address, *IEEE International Requirements Engineering Conference*, Sept. 2, 2009, Atlanta, GA.
120. Herbsleb, J. (2008). Coordination in Global Development. University of British Columbia, October 2, 2008. (Distinguished Speaker Series).
121. Herbsleb, J. (2008). Tactics for Global Software Development: When to do What? *Siemens Software Engineering Conference*, July 17, 2008. (Keynote address).
122. Herbsleb, J. (2007). A Highly Selective, Deeply Biased, and Mildly Heretical View of Software Engineering. Microsoft Research / University of Washington Summer Institute, August 12, 2007. (Keynote address).
123. Herbsleb, J. (2007). Global Software Engineering: The Future of Socio-technical Coordination, in *Future of Software Engineering 2007*, L. Briand and A. Wolf, Editors. 2007, IEEE-CS Press. (Invited presentation, ICSE 2007.)
124. Herbsleb, J. (2007). Open Source Ecologies. IBM Toronto, Academy of Technology Open Source Conference, February 27, 2007. (Keynote address).
125. Herbsleb, J. (2007). Aligning Coordination Behavior with Coordination Needs: Congruence in Software Development. IBM TJ Watson Research, February 13, 2007. (Invited presentation).
126. Herbsleb, J. (2007). Coordination in Engineering: Computing Task Dependencies from Work Artifacts. Boeing Phantom Works, January 9, 2007. (Invited presentation.)
127. Herbsleb, J. (2006). Coordination in GSD: Making the Invisible Visible. *International Conference on Global Software Engineering*, Florianopolis, Brazil, Oct. 16. (Keynote address)
128. Herbsleb, J. (2006). From Software Engineering to Software as Service: Computing Task Dependencies from Work Artifacts. Microsoft Research Laboratory, August 11, 2006. (Invited presentation.)
129. Herbsleb, J. (2006). Dependencies and awareness in unstable environments. Stanford University, March 22, 2006. (Invited presentation.)
130. Herbsleb, J. (2006). Overcoming the Challenges of Global Development. *OOP 2006*, Munich, Germany, January 18, 2006. (Invited presentation).
131. Herbsleb, J. (2006). What Every Commercial Developer Should Know about How Open Source Works. *OOP 2006*, Munich, Germany, January 19, 2006. (Invited presentation).
132. Herbsleb, J. (2005). Integrating organizational systems. Keynote, Siemens Technology Day 2005, Salzburg, Austria, 11/7/2005.

133. Herbsleb, J. (2005). Beyond computer science. *International Conference on Software Engineering (ICSE)*, pp. 23-27, St. Louis, MO, May 15-21, 2005 (invited presentation).
134. Herbsleb, J. (2004). Why open source works. *Open Source and Free Software: Concepts, Controversies, and Solutions*, May 9-11, University of Toronto, Toronto, Canada. <http://osconf.kmdi.utoronto.ca/default.htm> (invited presentation.)
135. Herbsleb, J. (2003). Two Cases of Open Source Software Development: Apache and Mozilla. *HBS - MIT Sloan Free/Open Source Software Conference: New Models of Software Development*, June 19-20, Harvard Business School and MIT Sloan School of Business. <http://opensource.mit.edu/conference.html> (invited presentation.)
136. Herbsleb, J. (2002). Research Priorities in Open Source Software Development. *Advancing the Research Agenda on Free/Open Source Software*, Oct. 14, Brussels, Belgium. Institute of Infonomics, University of Maastricht and Center for Information Policy, University of Maryland. <http://www.infonomics.nl/FLOSS/workshop/> (invited presentation.)
137. Herbsleb, J., (with Atkins, D., Handel, M., Mockus, A., Perry, D., Wills, G). Global Software Development: The Bell Labs Collaboratory. In proceedings, *International Conference on Software Engineering (ICSE 2001)* Toronto, Canada, May 15-18, p. 681. (Invited presentation.)

### **Selected Other Papers**

138. Choudhary, S. S., Bogart, C., Rosé, C. P., & Herbsleb, J. D. (2018). *Modeling Coordination and Productivity in Open-Source GitHub Projects*. Technical Report CMU-ISR-18-101, Carnegie Mellon University.
139. Pe-Than, E. P. P., Momcheva, I., Tollerud, E., & Herbsleb, J. D. (2019). *Hackathons for Science, How and Why?* Paper presented at the American Astronomical Society Meeting Abstracts# 233.
140. Pe-Than, E. P. P., Dabbish, L., & Herbsleb, J. D. (2018). Collaborative Writing on GitHub: A Case Study of a Book Project. Paper presented at the Companion of the 2018 *ACM Conference on Computer Supported Cooperative Work and Social Computing*.
141. Herbsleb, J. (2016). Building a socio-technical theory of coordination: why and how (outstanding research award). In Proceedings, *ACM International Symposium on Foundations of Software Engineering*, pp. 2-10.
142. Trainer, E.H. & Herbsleb, J.D. (2014). Beyond code: Prioritizing issues, sharing knowledge, and establishing identity at hackathons for science. *CSCW Workshop on Sharing, Re-use, and Circulation of Resources in Scientific Cooperative Work*.
143. Chaihirunkarn, C. & Herbsleb, J.D. (2014). Knowing community needs in open-source scientific software development. *CSCW Workshop on Sharing, Re-use, and Circulation of Resources in Scientific Cooperative Work*.
144. Bogart, C., Bachmann, F., Herbsleb, J., Klein, M., Northrop, L., Wallnau, K. (2014). The Invisible Need for Coordination in Sharing Scientific Cyberinfrastructure. *CSCW Workshop on Sharing, Re-use, and Circulation of Resources in Scientific Cooperative Work*.

145. Trainer, E., Chaihirunkarn, C., Herbsleb, J.D. (2013). The Big Effects of Short-term Efforts: A Catalyst for Community Engagement in Scientific Software. In *Proceedings of the First Workshop on Sustainable Software for Science: Practices and Experiences (WSSSPE)*, held in conjunction with the 2013 International Conference for High Performance Computing, Networking, Storage and Analysis (SC 2013, Denver, Colorado).
146. Herbsleb, J. D., Muller-Birn, C. and Towne, W. B. (2010). *The Vista Ecosystem: Current Status and Future Directions*. Technical Report CMU-ISR-10-124, Carnegie Mellon University, Pittsburgh, PA.
147. Cataldo, M., Herbsleb, J., & Carley, K. (2008). Socio-Technical Congruence: A Framework for Assessing the Impact of Technical and Work Dependencies on Software Development. Workshop on Socio-Technical Congruence (STC-2008), May 10, Leipzig, Germany.
148. Sarma, A. & Herbsleb, J.D. (2008). Using development experience to calculate congruence. Workshop on Socio-Technical Congruence (STC-2008), May 10, Leipzig, Germany.
149. Sarma, A., Herbsleb, J., & van der Hoek, A. (2008). Challenges in Measuring, Understanding, and Achieving Social-Technical Congruence. Workshop on Socio-Technical Congruence (STC-2008), May 10, Leipzig, Germany.
150. Herbsleb, J., Sarma, A., Mockus, A., & Cataldo, M. (2008). Using Distributed Constraint Satisfaction to Build a Theory of Congruence. Workshop on Socio-Technical Congruence (STC-2008), May 10, Leipzig, Germany.
151. Wagstrom, P. & Herbsleb, J. (2008). Individualized Socio-Technical Congruence. Workshop on Socio-Technical Congruence (STC-2008), May 10, Leipzig, Germany.
152. Herbsleb, J., Weber, R., Cai, Y., & Finholt, T. (2008). Economic Congruence in Open Source Ecologies. Workshop on Socio-Technical Congruence (STC-2008), May 10, Leipzig, Germany.
153. Wagstrom, P. & Herbsleb, J.D. (2006). Dependency forecasting in the distributed agile organization. *Communications of the ACM*, 49 (10), pp. 55-56.
154. Shaw, M., Herbsleb, J.D., Ozkaya, I., & Root, D. (2005). Deciding What to Design: Closing a Gap in Software Engineering Education Invited paper for Education and Training Track of 27th International Conference on Software Engineering (ICSE 2005), May 2005, book chapter to appear.
155. Herbsleb, J.D. & Moitra, D. Global Software Development. *IEEE Software*, March/April 2001. (Special issue, Herbsleb, J.D. & Moitra, D., Eds.)
156. Rocco, E., Finholt, T.A., Hofer, E.C., & Herbsleb, J.D. (2001, April). Out of sight, short of trust Presentation at the Founding Conference of the European Academy of Management. Barcelona, Spain.
157. Finholt, T. A., Rocco, E., Bree, D., Jain, N., & Herbsleb, J. D. NotMeeting: A Field Trial of NetMeeting in a Geographically Distributed Organization. *SIGCHI Bulletin*, April 1999.
158. Boyer, D. G., Cortes, M., Herbsleb, J. D., & Handel, Mark J. Virtual Community Presence Awareness. In *Proceedings, CSCW '98 Workshop on Designing Virtual Communities for Work*, Seattle, WA, November 14-18, 1998.

159. Herbsleb, J.D. Hard problems and hard science: On the practical limits of experimentation. (1998). *IEEE TCSE Software Process Newsletter*, No. 11, Winter 1998, 18-21.
160. Herbsleb, J. D. Supporting the emergence of abstractions in software design. (1997). *CHI 97 Workshop on Interactive Systems for Supporting the Emergence of Concepts and Ideas*.
161. Goldenson, D. & Herbsleb, J. (1995). After the appraisal: A systematic survey of process improvement, its benefits, and factors that influence success. Technical Report CMU/SEI-95-TR-009, Carnegie Mellon University.
162. Herbsleb, J., Carleton, A, Rozum, J., Siegel, J., Zubrow, D. (1994). Benefits of CMM-based software process improvement: Initial results. Technical Report CMU/SEI-94-TR-13, Carnegie Mellon University.
163. Herbsleb, J., Zubrow, D., Siegel, J., Rozum, J., Carleton, A. (1994). Software process improvement: State of the Payoff. *American Programmer*, 7, 2-12.

## Awards

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- ACM SIGSOFT Outstanding Research Award (2016). [Press release](#)
- Alan Newell Award for Research Excellence (2014) [Press release](#)
- Distinguished Paper Award, International Conference on Software Engineering 2011
- Most Influential Paper Award, International Conference on Software Engineering, 2010
- Best Paper Award, Academy of Management, 2010
- Distinguished Paper Award, Empirical Software Engineering and Measurement, 2008
- Best Paper Award, Computer Supported Cooperative Work, 2006

## Funding

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1. National Science Foundation, IIS-1546393, Study of a Cyber-Enabled Social Computing Framework for Improving Practice in Online Computing Communities. \$1.6M (2016). PI: Rose, co-PI Herbsleb.
2. Sloan Foundation. Enhancing Scientific Software Sustainability Through Community Code Engagements. \$1.1M (2015). PI: Herbsleb.
3. Google Open Source Program Office. \$50,000 (2015).
4. National Science Foundation, IIS-1302522. Personalized information access for online deliberation systems. \$1.22M (2013). PI: Herbsleb, co-PI Rose.
5. National Science Foundation, IIS-1322278. Designing Transparent Work Environments. \$300K (2013). PI Dabbish, co-PI Herbsleb.
6. Software Engineering Institute, Collaboration in XSEDE. \$280,350 (2013). PI: Herbsleb.
7. Sloan Foundation. \$576,000 (2012).
8. Google Open Source Program Office. \$50,000 (2013, 2014).
9. Bosch Corporate Research. \$140,000 (2012).
10. SEI LENS, Concurrent Crowdsourcing Requirements and Architecture, \$500K (2012).

11. National Science Foundation, IIS-1111750. Large-Scale Human-Centered Coordination Systems to Support Interdependent Tasks in Context, \$1.45M (2011). PI: Herbsleb.
12. National Science Foundation, SMA-1064209. The Scientific Software Network Map, \$542,000 (2011). PI: Herbsleb
13. IBM Open Collaborative Research grant \$200,000 (2010-2011).
14. NSF Planning Grant, I/UCRC, Center on Architecting Socio-Technical Ecosystems, \$23,000 (2011). PI: Herbsleb.
15. National Science Foundation, OCI-0943168. Socio-technical ecosystems for scientific software development, \$400,000 (2009). PI: Herbsleb.
16. Bosch Corporate Research. \$100,000 (2008).
17. IBM Jazz Faculty grant. \$60,000 (2008-2009).
18. Accenture Technology Labs \$100,000 (2007-2008).
19. Siemens Software Initiative. \$100,000 (2007).
20. National Science Foundation, IIS-0414698. Coordination, communication, and collaboration in open source software development. \$400,000. PI: Herbsleb.
21. National Science Foundation, IIS-0534656. The role of architecture in facilitating design collaboration. \$500,000. PI: Herbsleb.
22. Siemens Corporate Research, \$100,000 (2006).
23. IBM Faculty Award, \$40,000 (2005).
24. SEI IR&D. Understanding organizational risk in architectural design. \$246,000.
25. Sloan Foundation. Software Industry Center. \$500,000.

## Courses Taught

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Empirical Methods for Socio-Technical Research (S 2015)  
Ethics and Policy Issues in Computing (S 2015)  
Innovation Ecosystems (mini, F 2015)  
Influence and Persuasion Online (mini, F 2015)

## Dissertation Supervision

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### **Committee Chair or Co-chair**

Marcelo Cataldo (with Kathleen Carley), Institute for Software Research, SCS, CMU  
Uri Dekel, Institute for Software Research, SCS, CMU  
Ben Towne, Institute for Software Research, SCS, CMU  
Jason Tsay, Institute for Software Research, SCS, CMU  
Patrick Wagstrom (with Kathleen Carley), Institute for Software Research, SCS, CMU

## Professional Activities

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Associate Editor, *ACM Transactions on Software Engineering and Methodology*, 2008-2014  
Editorial Board, *Empirical Software Engineering*, 2006-2011  
Conference Co-Chair, *Computer-Supported Cooperative Work (CSCW)* 2004  
Program Committee, *International Conference on Software Engineering*, 2008  
Program Committee, *Foundations of Software Engineering (FSE)* 2008  
Program Committee, *Foundations of Software Engineering (FSE)* 2006  
Program Committee, *Foundations of Software Engineering (FSE)* 2004  
Program Committee, *International Conference on Software Engineering (ICSE)* 2003  
Program Co-Chair, *Human-Computer Interaction Consortium (HCIC)* 2002.  
Guest editor, Special issue of *IEEE Software* on Global Software Development (Mar./Apr. 2001)  
Reviewer, ACM Conference on *Computer-Human Interaction (CHI)*  
Reviewer, ACM Conference on *Computer-Supported Cooperative Work (CSCW)*  
Reviewer, *ACM Transactions on Information Systems (TOIS)*  
Reviewer, *IEEE Transactions on Software Engineering*  
Reviewer, *Empirical Software Engineering*  
Reviewer, *Empirical Studies of Programmers*  
Reviewer, *Human-Computer Interaction*  
Reviewer, *IBM Systems Journal*  
Member, Association for Computing Machinery