

Dichiarazione sostitutiva atto notorietà
(art. 47 DPR 445 DEL 28.12.2000)
ai sensi dell'art. 15, comma 1, lett. c), D.Lgs 33/2013 e
ai sensi dell'art. 20 comma 5, del D. Lgs. 8 aprile 2013 n. 39

Il/La sottoscritto/a CATHERINE COLE MCGEOCH CF. MCGCHR59P522404T
nato a INDIANA, USA Prov () il 12/09/1959

consapevole delle sanzioni penali, nel caso di dichiarazione non veritiere, di formazione o uso di atti falsi, richiamate dall'art. 76 del DPR n. 445 del 28.12.2000

DICHIARA

ai sensi dell'art. 15, c. 1, lett. c) del D.Lgs 33/2013 e ai sensi dell'art. 20, c. 5 del D.Lgs 39/2013

in relazione al conferimento dell'incarico di : _____

a) di non svolgere incarichi e di non essere titolare di cariche in Enti di diritto privato regolati o finanziati dalla Pubblica Amministrazione conferente;

ovvero

di svolgere i seguenti incarichi o di essere titolare delle seguenti cariche in Enti di diritto privato regolati o finanziati dalla Pubblica Amministrazione conferente:

1) _____

2) _____

3) _____

b) di non svolgere attività professionali in Enti di diritto privato regolati o finanziati dalla Pubblica Amministrazione conferente;

ovvero

di svolgere le seguenti attività professionali in Enti di diritto privato regolati o finanziati dalla Pubblica Amministrazione conferente:

1) _____

2) _____

3) _____

c) di non trovarsi in alcuna delle situazioni di inconferibilità di cui al D.Lgs n. 39/2013.

INFORMATIVA RIGUARDO AL TRATTAMENTO DEI DATI PERSONALI (ART. 13 REG.UE 2016/679)

Il/La sottoscritto/a prende atto che il trattamento dei propri dati personali e sensibili avverrà secondo le modalità stabilite dal Regolamento UE 2016/679 (GDPR) relativo alla protezione delle persone fisiche con riguardo al trattamento dei dati personali, al solo fine di assolvere gli adempimenti di natura obbligatoria posti in capo al LENS.

Il/La sottoscritto/a prende altresì atto che il curriculum vitae et studiorum e le dichiarazioni rese per le quali, ai sensi della normativa vigente, è prevista l'ottemperanza ad obblighi di trasparenza, verranno pubblicati sul sito web dell'Amministrazione in apposita sezione di "Amministrazione Trasparente", all'indirizzo <https://www.lens.unifi.it>, dove è presente una pagina dedicata alla tematica della protezione dei dati personali contenente anche l'informativa per il trattamento dei dati personali dei collaboratori esterni.

Il/La sottoscritto/a si impegna a comunicare eventuali cause di incompatibilità che intercorrano nel corso dello svolgimento dell'incarico.

Firenze, 22/03/2019


IL /LA DICHIARANTE (firma leggibile per esteso)

Catherine Cole McGeoch

D-Wave Systems
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Research Interests

Simulation and experimental methods for algorithm analysis; generation of random combinatorial objects; heuristics for NP-hard problems; algorithm design and analysis. Methodologies for experimental algorithmics and benchmarking. Quantum annealing, adiabatic quantum computing.

Education

PhD 1986 Carnegie Mellon University. Dissertation Title: *Experimental Analysis of Algorithms*.
Dissertation Adviser: J. L. Bentley.
MS 1983 Carnegie Mellon University.
BS 1981 Butler University, Indianapolis, IN. Graduated *summa cum laude* and with highest departmental honors.

Employment

D-Wave Systems

2014-2017 Benchmarking Team Lead
Since 2017 Principal, Benchmarking

Amherst College

2013-2014 Chair, Department of Computer Science
2010-2017 Beitzel Professor of Technology and Society
2001-2017 Professor, Department of Computer Science
1995-2001 Associate Professor, Department of Mathematics and Computer Science
1987-1995 Assistant Professor, Department of Mathematics and Computer Science

Professional Experience

- Fall 2012. Consultant to D-Wave Systems Inc.
- Fall 2012. Visiting Professor, Department of Computer Science, University of Massachusetts, Amherst, MA.
- 1995-present. Adjunct (formerly Assistant, Associate) Professor, Department of Computer Science, University of Massachusetts.
- 1995–1996. Visiting Scholar, Department of Computer Science, University of Massachusetts.
- August 1990–July 1991. Visiting Fellow, Center for Discrete Mathematics and Computer Science (DIMACS), Piscataway, NJ.
- 1986–1987. Research Associate, Department of Computer Science, Carnegie Mellon University, Pittsburgh, PA.
- Summer 1985. Consultant to the legal firm of Thorpe, Reed, and Armstrong, Pittsburgh, PA.
- Spring/Summer 1985. Consultant to AT&T Bell Laboratories, Murray Hill, NJ.
- Summer 1983. Member of Technical Staff, AT&T Bell Laboratories, Murray Hill, NJ.
- Summer 1981. Research Assistant, Department of Computer Science, Purdue University.

Editorial/Publication Activities

- 2013–2017. Chair of the Ethics and Plagiarism Committee, ACM Publications Board.
- 2009–2016. Member of the ACM Publications Board.
2009. Guest editor for a special section on papers from WEA 2009, *ACM Journal of Experimental Algorithmics*.
- 2003–2008. Editor in Chief, *ACM Journal of Experimental Algorithmics*.
- 1997+. Associate Editor, DIMACS Educational Module Series.
- 1995–2000. Editorial board, *Theory of Computing Systems*, formerly *Mathematical Systems Theory*.
- 1994–2011. Associate Editor, *ACM Journal of Experimental Algorithmics*.
- 1993–1995. Editor and author of a bimonthly column “The Computer Science Sampler,” in *The American Mathematical Monthly*.
- 1991–1998. Associate Editor, *The American Mathematical Monthly*.
- 1990–1994. Associate Editor, *Journal of Computational and Graphical Statistics*.

Selected Professional Activities

- June 2019. Invited Speaker, Adiabatic Quantum Computing Conference (AQC 2019), Innsbruck, Austria.
- September 2015. Invited speaker, SPIE Conference on Quantum Information Science and Technology, Toulouse, France.
- January 2015. Invited speaker, Dagstuhl Seminar 15052, “Empirical Evaluation for Graph Drawing,” Wadern, Germany.
- January 2015. Invited speaker, IDQ 7th Winter School on Practical Quantum Communications, Les Diablerets, Switzerland.

- Fall 2013-January 2014. Program co-chair and program committee member, ALENEX 2014, Portland, OR.
- June 2010. Speaker, Dagstuhl Seminar 10261, “Algorithm Engineering,” Schloss Dagstuhl Leibniz-Zentrum für Informatik, Wadern, Germany.
- June 2010. Invited lecturer, Master Class on Experimental Study of Algorithms and Benchmarking, at the 7th International Conference on Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR), Bologna, Italy.
- July 2008. Invited lecturer, University of Catania 20th International Lipari Summer School on “Algorithms: Science and Engineering,” Lipari Island, Italy.
1999. Founding program co-chair, ALENEX '99, with M. Goodrich.
- 1990–1991. Founding co-organizer of the DIMACS Implementation Challenge, with D.S. Johnson.

Grants

- Fall 2012. Senior Sabbatical Fellowship, Amherst College.
- July 2009-June 2010. Senior Sabbatical Fellowship, Amherst College.
- June 2004-June 2005. “Support for Editorial Activities,” Faculty Research Award Program, Amherst College.
- September 1990-February 1992. “RUI: Experimental Analysis of Network Flow Algorithms.” NSF Grant No. CCR-9013079.

Books

- Network Flows and Matching: Proceedings of the First DIMACS Implementation Challenge*, DIMACS Series in Discrete Mathematics and Theoretical Computer Science, Volume 12. American Mathematical Society, 1993. Editor, with D. S. Johnson. Also published as *DIMACS Implementation Challenge Workshop: Algorithms for Network Flows and Matching*, DIMACS Technical Report 92-4, January 1992.
- Proceedings of the Workshop on Algorithm Engineering and Experimentation (ALENEX99)*, Springer Verlag Lecture Notes in Computer Science, No. 1619, 1999. Editor, with M. T. Goodrich.
- Data Structures, Near Neighbor Searches, and Methodology: Proceedings of the Fifth and Sixth DIMACS Implementation Challenges*, Volume 59, DIMACS Series in Discrete Mathematics and Theoretical Computer Science, Mathematical Association of America, 2002. Editor, with M. H. Goldwasser and D. S. Johnson.
- Experimental Algorithms*, Proceedings of the 7th International Workshop, WEA 2008. Springer Lecture Notes in Computer Science LNCS 5068, 2008. Editor.
- A Guide to Experimental Algorithmics*, Cambridge University Press, 2012.
- Adiabatic Quantum Computing and Quantum Annealing: Theory and Practice*, Morgan & Claypool, 2014.

Articles

- “An experimental study of bin packing,” *Proceedings of the 21st Annual Allerton Conference on Computing, Control, and Communication* (1983). With J. L. Bentley, D. S. Johnson, and F. T. Leighton.
- “Some unexpected expected behavior results for bin packing,” *Proceedings of the 16th Annual ACM Symposium on Theory of Computing (STOC)* (1984). With J. L. Bentley, D. S. Johnson, F. T. Leighton, and L. A. McGeoch.
- “Amortized analysis of self-organizing sequential search heuristics,” *Communications of the ACM* Vol. 28 (April 1985), with J. L. Bentley. An early version appears as “Worst case analysis of self-organizing sequential search heuristics,” *Proceedings of the 20th Annual Allerton Conference on Computing, Control, and Communication* (1982).
- Experimental Analysis of Algorithms*. PhD dissertation, Department of Computer Science, Carnegie-Mellon University (August 1986). Available as Technical Report CMU-CS-87-124.
- “An experimental study of median-selection in Quicksort,” *Proceedings of the 24th Annual Allerton Conference on Computing, Control, and Communication* (1986).
- When are Best Fit and First Fit Optimal?* Technical Report CMU-CS-87-168, Department of Computer Science, Carnegie-Mellon University, Pittsburgh, PA (October 1987). With J. D. Tygar.
- “Analyzing algorithms by simulation: variance reduction techniques and simulation speedups,” *Computing Surveys*, June 1992. Also published (in Japanese translation) in *bit*, Kyoritsu Shuppan Pub. Co. Ltd., Tokyo, 1994.
- “The Computer Science Sampler,” column appearing in *The American Mathematical Monthly*. Data Compression, May 1993; Zero-Knowledge Proofs, August-September 1993; Parallel Addition, November 1993; Does Anybody Really Know What Time It Is? May 1994; Veni, Divisi, Vici, May 1995.
- “All-pairs shortest paths and the essential subgraph,” *Algorithmica*, May 1995. An earlier version appeared as “Using the Short-Path Subgraph to Find Shortest Paths,” DIMACS Technical Report TR 91-30.
- “Optimal sampling strategies for Quicksort,” *Random Structures and Algorithms*, Vol. 7, No. 4, 1995. An earlier version appeared in *Proceedings of the 28th Annual Allerton Conference on Computing, Control, and Communication*, 1990. With J. D. Tygar.
- “Toward an experimental method for algorithm simulation” (feature article), *INFORMS Journal on Computing*, Vol. 8 No. 1, Winter 1995.
- “Challenges in algorithm simulation” (rejoinder), *INFORMS Journal on computing*, Vol. 8, No. 1, Winter 1995.

- “Research in the curriculum, and the Web” (position paper), *CSURVES: Computing Surveys Electronic Section*, Vol. 28, 1996.
- “Emerging opportunities for theoretical computer science,” *SIGACT News*, Vol. 28, 1997. Committee report, with A. Aho, D. S. Johnson, R. Karp, S. R. Kosaraju, D. Papadimitriou, and P. Pevzner.
- “How to present a paper on experimental work with algorithms,” *SIGACT News*, Vol. 30, No. 4, December 1999. With Bernard M.E. Moret.
- “Experimental analysis of algorithms” (invited article), *Notices of the American Mathematical Society*, pp 304-311, March 2001.
- “Experimental analysis of optimization algorithms,” a chapter in the *Handbook of Applied Optimization*, Oxford University Press, 2002. Panos M. Pardalos and Mauricio G. C. Resende, editors.
- “Using finite experiments to study asymptotic performance,” in *Experimental Algorithmics: From Algorithm Design to Robust and Efficient Software*, Lecture Notes in Computer Science No. 2547, Springer-Verlag Publishers, 2001, R. Fleischer, B. Moret, and E. M. Schmidt, Editors. With P. Sanders, R. Fleischer, P. Cohen, and D. Precup.
- “How to find big-oh in your data set (and how not to),” presented at the Second International Symposium on Intelligent Data Analysis (IDA-97), LNCS, Birkbeck College, London, August 1997, with P. Cohen and D. Precup.
- “Experimental analysis of algorithms,” a chapter in the *Handbook of Global Optimization, Volume 2: Heuristic Approaches*, Kluwer Academic Publishers, 2002. Panos Pardalos and H. Edwin Romeijn, editors.
- “A bibliography of algorithm experimentation,” in *Data Structures, Near Neighbor Searches, and Methodology: Proceedings of the Fifth and Sixth DIMACS Implementation Challenges*, Volume 59, DIMACS Series in Discrete Mathematics and Theoretical Computer Science, MAA, 2002.
- “Experimental algorithmics,” *Communications of the ACM*, Special issue on experimental computer science, 50 (11), November 2007.
- “Experimental methods for algorithm analysis,” article in *The Encyclopedia of Algorithms*, Ming-Yang Kao, Ed, Springer Verlag, 2008.
- “Experimental evaluation of an adiabatic quantum system for combinatorial optimization,” in *Proceedings of the 2013 ACM Conference on Computing Frontiers*, with Cong Wang. May 2013. Best Paper Award.
- “Towards a benchmark test suite for quantum annealers,” proceedings of the Quantum Optimization Workshop, Fields Institute, Toronto. October 2014.

- “Algorithm engineering for a quantum annealing platform,” arXiv:1410.2628, October 2014.
With Andrew D. King.
- “Benchmarking D-Wave quantum annealing systems,” Conference 9648B: Quantum Information Science and Technology, Proceedings of SPIE Vol. 9648, Toulouse, FR, September 2015.
- “Benchmarking a quantum annealing processor with the time to target metric,” arXiv:1508.05087, August 2015. With James King, Sheir Yarkoni, Mayssam M. Nevisi, and Jeremy P. Hilton.
- “Quantum annealing amid local ruggedness and global frustration,” arXiv:1701.04579, January 2017. With James King, Sheir Yarkoni, Jack Raymond, Isil Ozfidan, Andrew D. King, Mayssam Mohammadi Nevisi, and Jeremy P. Hilton. Also available as D-Wave Technical Report 14-1003A-D, 2017-03-15.
- “Optimization with clause problems,” D-Wave Technical Report 14-1001A-A, 2017-01-27. With J. King, M. Mohammadi Nevisi, S. Yarkonim, and J. Hilton, January 2017.
- “A cross-disciplinary introduction to quantum annealing-based algorithms,” *Contemporary Physics* Vol. 58, Issue 02, pp. 174-196 (2018). Preprint: arXiv:1803.03372, March 2018.
- “Principles and guidelines for quantum performance analysis,” to appear in proceedings of the First International Workshop on Quantum Technology and Optimization Problems (QTOP’19), *LNCS*, 2019.
- “Practical annealing-based quantum computing,” to appear in *IEEE Computer Magazine*, 2019. With R. Harris, S. P. Reinhardt, and P. Bunyk.

Other Publications

- “On experimental algorithmics: An interview with Catherine McGeoch and Bernard Moret,” interview by Richard T. Snodgrass, *ACM Ubiquity*, August 2011, pp 1-14.
- “The shootout is no more random than the alternatives,” manuscript (hockey analytics), 2012.
- “Is quantum computing for real? An interview with Catherine McGeoch of D-Wave Systems,” interview by Walter Tichy, *ACM Ubiquity*, July 2017, pp. 1-20.
- Comment on “Scaling advantages of all-to-all connectivity in physical annealers: the Coherent Ising Machine vs D-Wave 2000Q” arXiv:1807.00089, July 2018.