

Dr. Gordon A. Fenton

Curriculum Vitae

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Education:

- Ph.D., Princeton University, in Civil Engineering and Operations Research,
Thesis Title: *Simulation and Analysis of Random Fields*, Jan. 1990
- M.A., Princeton University, in Civil Engineering and Operations Research,
Structures Program, 1987
- M.Eng., Carleton University, in Civil Engineering,
Thesis Title: *Differential Movements and Stresses Arising in Masonry Veneers of Highrise Structures*
Graduated, Thesis with Distinction, 1984
- B.Eng., Carleton University, in Civil Engineering
Graduated with High Distinction, 1981



Work Experience:

- 1999- present: Professor, Department of Engineering Mathematics, Cross-appointed to Civil Engineering, Dalhousie University.
- 2004-2005: Visiting Professor, School of Civil and Environmental Engineering, University of Adelaide, Adelaide, Australia.
- 1997/98: Visiting Associate Professor, Dept. of Civil and Operations Research, Princeton University, Princeton, New Jersey.
- 1997: Research Fellow, Norwegian Geotechnical Institute, Oslo, Norway.
- 1994-1998: Associate Professor, Department of Engineering Mathematics, Technical University of Nova Scotia (now Dalhousie University).
- 1990-1994: Assistant Professor, Department of Applied Mathematics, Technical University of Nova Scotia.
- 1990: Consulting engineer, Adjeleian Allen Rubeli Inc., structural design, development of design oriented computer



programs. Also session lecturer at Carleton University.

- 1986- Research Assistant, Princeton University, development and evaluation of simulation techniques and application to
- 1989: random media. Conditional simulation of correlated random series.
- 1983- Research Engineer, reinforced masonry code development, design and setup of research projects, supervision of
- 1985: graduate students, supervision of masonry research projects, development of reinforced concrete handbook, at Carleton University, Department of Civil Engineering, Ottawa, Canada.



Teaching Interests:

- *Undergraduate Level:* risk management, probability and statistics, numerical methods in engineering, geotechnical engineering, structural design, Fortran and C programming.
- *Graduate Level:* risk assessment and management, theory of random fields with application to reliability studies and problems in geomechanics and environmental engineering, finite element methods (linear, dynamic, non-linear), time series modeling and analysis, numerical linear algebra, linear regression.



Teaching Experience:

- 1990- Assistant/Associate/Full Professor at Dalhousie University in the Department of Engineering Mathematics, developing pres: and teaching undergraduate courses in *Probability and Statistics*, *Computer Programming*, and *Numerical Methods*. Introduced and taught graduate level courses in *Risk Assessment and Management*, *Random Field Theory* and the *Finite Element Method*. Also developed and taught graduate level courses in *Linear Regression*, and *Numerical Linear Algebra*. Directed studies at the graduate level have been offered in *Time Series Analysis*.
- 1997: Visiting Associate Professor at the Dept. of Civil Engineering and Operations Research, Princeton University, taught *Fundamentals of Engineering Statistics*.
- 1990: Sessional lecturer at Carleton University, for the course *Mechanics of Deformable Bodies* in the Dept. of Civil Engineering.
- 1988- Assistant in Instruction at Princeton University, Civil Eng., for the course *Introduction to Structured Programming*,
- 1990: involved lab setup and instruction in Fortran and C.
- 1987: Assistant in Instruction at Princeton University, Civil Eng., for the course *Design of Structures*, involved the development of interactive instructional computer programs written in BASIC for PC's with graphics screens.
- 1981- Assistant in Instruction at Carleton University, Civil Eng., for the courses *Reinforced Concrete Design* and *Prestressed*
- 1983: *Concrete Design*, involved office hours, marking, and instruction.



Invited Lectures, Short Courses, Site Visits:

- 2010: Keynote lecture on *Reliability-Based Geotechnical Engineering*, ASCE Geo-Institute Annual Conference, GeoFlorida 2010, West Palm Beach, Florida, Feb 23.
- 2010- On-line short course on *Risk Assessment in Geotechnical Engineering*, ASCE Continuing Education Program.
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- 2007- Short course on *Risk Assessment in Geotechnical Engineering*, ASCE Continuing Education Program, 1.5 days.
- Delivered in San Francisco (Apr 22–23, 2010), New Orleans (Jan 14–15, 2010), Boston (Nov 12–13, 2009), Sacramento pres: (Apr 2–3, 2009), Nashville (Feb 26–27, 2009), Scottsdale (Dec 11–12, 2008), Atlanta (Feb 28–29, 2008), San Francisco (Dec 6–7, 2007), Burlington (Sep 27–28, 2007), Denver (Jul 12–13, 2007).
- 2009: Short course on *Risk Assessment in Geotechnical Engineering*, Canadian Geotechnical Society, 1 day, Halifax, Sep 20.
- 2006: Short course on *Probabilistic Methods in Geotechnical Engineering*, International Centre for Mechanical Sciences (CISM), 5 days, Udine, Italy, July 10–14.
- 2006: Short course on *Geotechnical Risk Assessment and Reliability-Based Design*, Canadian Geotechnical Society, 1 day, Toronto, Feb 22.
- 2005: Lecture tour on *Reliability-Based Geotechnical Design*, delivered to the Australian Geomechanics Society and Universities in Adelaide, Melbourne, Sydney, Newcastle, and Canberra.
- 2003: National Science Foundation Site Visit Team Leader, *Review of Pacific Earthquake Engineering Research Center*,

Berkeley, CA

2001: National Science Foundation Site Visit, *Review of Pacific Earthquake Engineering Research Center*, Berkeley, CA
 2000: National Science Foundation Site Visit, *Review of Pacific Earthquake Engineering Research Center*, Berkeley, CA
 1998: Short course on *Site Characterization*, University of Washington, Seattle
 1998: *Approaches to Inferential Geostatistics*, Princeton University
 1997: *Random Field Representation of CPT Data: Parameter Estimation*, Norwegian Geotechnical Institute, Oslo, Norway
 1996- Short course on *Probabilistic Methods in Geotechnical Engineering*, University of Wisconsin (1996), University of Utah
 7: (1997), USA
 1995: *Random Fields*, Composite Materials Group, Technical University of Nova Scotia
 1994: *Geostatistics*, Mining Engineering Program, Technical University of Nova Scotia
 1994: *Simulation Techniques*, Industrial Engineering Dept., Technical University of Nova Scotia
 1994: *Simulation Techniques*, Applied Mathematics Department, Dalhousie University, Halifax, Nova Scotia
 1994: *Random Field Generation*, Mathematics and Statistics Dept., Queen's University, Kingston, Ontario
 1992: *Random Fields in Geotechnical Engineering*, School of Engineering, Manchester University, United Kingdom



Current Research Interests:

- Reliability-based geotechnical design and code development;
- Risk assessment of geotechnical systems;
- Probabilistic behaviour of shallow and deep foundations, earth retaining structures, and slopes;
- Effects of climate change on climatic loads;
- Risks associated with carbon capture and storage.



Professional Affiliations:

- Member of the Canadian Highway Bridge Design Code CSA A271-6 (Foundations) Committee. Responsible for developing the reliability-based code provisions for the 2012 edition.
- Member of the NRC Canadian Commission on Building and Fire Code Task Group on Climatic Loads. Responsible for climate change effects on climatic loads.
- Member of the National Building Code of Canada Standing Committee on Structural Design. Responsible for geotechnical design code development.
- North American Managing Editor of the International Journal *Georisk*.
- Core member and past-chair (1999 to 2003) of the ASCE Geo-Institute Risk Assessment and Management Committee.
- Co-Chair of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) Risk Assessment and Management Committee, TC-304.
- Past member (1996 to 2003) of the Editorial Board of the *ASCE Journal of Geotechnical and Geoenvironmental Engineering*
- Past Chair of Awards Sub-committee of the APENS Student Affairs Committee.
- Registered Professional Engineer with APENS.
- Member of the Canadian Geotechnical Society.
- Member of the American Society of Civil Engineers.



Awards and Honours:

- 2009: Received the Dalhousie *Faculty of Engineering Teaching Award*.
- 2004: Received the Dalhousie Undergraduate Engineering Society *Professor Appreciation Award*.
- 2000-2004: *Maclean's Guide to Canadian Universities*, on Dalhousie University Most Popular Profs list.
- 1994: Received the *George Stephenson Medal* from the Institution of Civil Engineers, United Kingdom, for the paper entitled "Seepage beneath water retaining structures founded on spatially random soil" (published in *Geotechnique*, 1993).
- 1993: Received the *TUNS Annual Award for Teaching Excellence*, Technical University of Nova Scotia. Each year one teacher at TUNS is selected for this award by the student body.
- 1991: Nominated for the *TUNS Annual Award for Teaching Excellence*, Technical University of Nova Scotia. Also in 1992 and 1994.
- 1988: Received the *John von Neumann Supercomputer Fellowship*, held at Princeton University.

- 1986: Received the *Gzowski Medal*, awarded annually by the Engineering Institute of Canada for the best paper of the year on a civil engineering subject, "Differential movements and stresses in high-rise masonry veneers: Analysis," published in the *Canadian Journal of Civil Engineering*.

Patents:



- US Provisional Patent Application No. 60/090,330 on KLT-Based Quality Controlled Compression, with G.C. Kember and T. Blanchet, 1998
- US Provisional Patent Application on the computer program SIMQKE-II: Conditional Simulation of Earthquake Ground Motion, with Erik Vanmarcke and Ernesto Heredia-Zavoni, 1997.