

C. Lindsay Dennison Anderson
Biological and Environmental Engineering
320 Riley Robb Hall
Cornell University
Ithaca NY 14853-5701
landerson@cornell.edu

EDUCATION

<u>Year</u>	<u>Degree</u>	<u>Institution</u>
2004	Ph.D. (Applied Mathematics)	University of Western Ontario, Canada
1998	M.Sc. (Environmental Engineering)	University of Guelph, Canada
1994	B.Sc. (Environmental Engineering)	University of Guelph, Canada

PROFESSIONAL EXPERIENCE

<u>Year</u>	<u>Experience</u>
2006 – Current	Senior Research Associate, Biological and Environmental Engineering Cornell University
2004 – 2006	Assistant Professor, Civil and Environmental Engineering, University of Western Ontario, Canada
1999 – 2004	Research Assistant, Department of Applied Mathematics, University of Western Ontario, Canada
2000 – 2001	Graduate Intern, Ontario Power Generation (Risk Management Group)
1997 – 2001	Instructor, Department of Applied Mathematics, University of Western Ontario, Canada
1994 – 1998	Research Assistant, School of Engineering, University of Guelph, Canada
1994 – 1996	Undergraduate Academic Counsellor/Liaison, School of Engineering, University of Guelph, Canada.

HONORS AND AWARDS

- Canadian Applied and Industrial Math Society, Doctoral Dissertation Award, 2004.
- Outstanding Service Award, 2004. Mathematics of Information Technology and Complex Systems (MITACS) National Centers of Excellence.
- NSERC University Faculty Award 2004-2007, Faculty of Engineering, University of Western Ontario.
- Student Paper Award (First Prize), SWORD Conference. University of Western Ontario. June 2003.
- Ontario Graduate Scholarship. The University of Western Ontario. (2003/2004)
- NSERC Industrial Postgraduate Scholarship. Sponsored by Ontario Power Generation. (2000-2002)
- Nominated by Engineering Students for the “USC Award for Excellence in Undergraduate Teaching”. (2000)
- Special University Scholarship, The University of Western Ontario. (1999-2001)
- Graduate Tuition Scholarship, The University of Western Ontario. (2001-2002)
- Lana McLaren/Richard Reynolds Memorial Scholarship. School of Engineering, University of Guelph. (1995)
- William James Award (for Innovation and Leadership). School of Engineering, University of Guelph. (1994)

CURRENT AND PENDING GRANT SUPPORT

Market & Reliability Issues for Renewable Energy Sources

DOE/CERTS (2007: \$875k, 2008: pending)

Investigators: F. Alvarado (Univ. of Wisconsin – Madison), C. L. Anderson (BEE - Cornell), J. Cardell (Smith College), B. Lesieutre (Univ. of Wisconsin, Madison), T. Mount (AEM, Cornell), C. Murillio-Sanchez (ECE - Cornell), S. Oren (Stanford), T. Overbye (Univ. of Illinois, U-C), R. Schuler (CEE & Econ – Cornell), W. Schulze (AEM – Cornell), K.M. Zhang (M&AE – Cornell), R. Zimmerman (ECE – Cornell)

A Systems Approach to Assessing the Impact of Uncertainty on Bioenergy Production Outcomes

Hatch (Federal Formula Funds: \$65k) Duration: 3 years

Investigators: C. L. Anderson (BEE), L. P. Walker (BEE).

Plug-in Hybrid Electric Vehicles.

Academic Venture Fund, Cornell Center for Sustainable Future. Duration: 1 year

Investigators: K. Max Zhang (M&AE), Tim Mount (AE&M), Bob Thomas (E&CE), Lindsay Anderson (B&EE), Oliver Gao (C&EE), Ying Hua (D&EA), Andrew Hunter (C&BE), Francis Vanek (C&EE), Ray Zimmerman (AE&M)

Environmental, Energetic and Economic Potential of Biochar.

Academic Venture Fund, Cornell Center for Sustainable Future. Duration: 18 months

Investigators: Johannes Lehmann (C&SS), Norm Scott (B&EE), Brent Gloy (AE&M), Antonio Bento (AE&M), Stephen Younger (CFNP), Janice Thies (C&SS), John Gaunt (C&SS), Lindsay Anderson (B&EE), Drew Lewis (CUAES), Francis Vanek (C&EE)

PUBLICATIONS

A. Peer-Reviewed Publications

C. L. Anderson & J. B. Cardell. (2009) **A Simulation Approach to Estimating the System Costs of Wind Power Uncertainty.** Proceedings of the IEEE Power Engineering Society General Meeting, 2009. IEEE Press. *To Appear.*

L. Anderson & M. Davison (2009). **The Application of Cash-Flow-at-Risk to Risk Management in a Deregulated Electricity Market.** Invited Paper. Special Issue of Human and Ecological Risk Assessment. 15(2): 253-269.

L. Anderson & M. Davison. (2008) **A Hybrid System-Econometric Model for Electricity Spot Prices: Considering Spike Sensitivity to Forced Outage Distributions.** IEEE Transactions on Power Systems. 23(3):927-937

L. Anderson & J. B. Cardell (2008). **Reducing Wind Power Variability in Day Ahead Electricity Markets.** Proceedings of the 41st Annual Hawaii International Conference on System Sciences (CD-ROM), Computer Society Press, (7 pages).

L. Anderson and M. Davison. (2005) **An Aggregate Weibull Method for Modelling Short-term Generating Capacity.** IEEE Transactions on Power Systems. 20(4):1783-1789.

M. Davison, L. Anderson, B. Marcus and K. Anderson (2002) **Development of A Hybrid Model for Electricity Spot Prices.** IEEE Transactions on Power Systems. 17(2):257-264.

L. Anderson, M. Davison and H. Rasmussen (2001). **A New Finite-Difference Procedure for Fixed-Strike Asian Call Options.** Computational Intelligence: Methods and Applications. ICSC Academic Press Canada/The Netherlands. 302-306.

B. Working Papers and Papers Under Review

L. Anderson and J.B. Cardell (2009). **Analysis of Wind Penetration and Network Reliability Through Monte Carlo Simulation.** Proceedings on the Winter Simulation Conference. *Under Review.*

S. Wang, M. Davison, D. Leadbetter, L. Anderson. **Dynamic Solvency Tests and Contagion in the Property and Casualty Insurance Company.** The Geneva Papers. (currently under revision).

L. Anderson & J. B. Cardell. **Integration of Wind Power in Electricity Markets and Systems.** IEEE Transactions on Power Systems. (currently under revision).

L. Li & C. L. Anderson. **Reservoir Inflow Forecasting with Artificial Neural Networks.** In Preparation for submission to Stochastic and Statistical Methods in Hydrology and Environmental Engineering, The Netherlands

M. Davison & L. Anderson. **Approximate Recursive Formulation of Electricity Swing Options.** In Preparation for submission to the European Journal of Operations Research.

C. Conference Presentations

L. Anderson and J. B. Cardell, (2008), “**Simulating the System Cost of Wind Power.**” Institute for Operations Research and Management Sciences (INFORMS), Annual Meeting. Washington, DC. October 12 – 15, 2008.

T. Mount, J.B. Cardell, L. Anderson and J-Y Mo (2008), “**The Economic Implications of Adding Wind Capacity to a Bulk Power Transmission Network**”, Advanced Workshop in Regulation & Competition, 27th Annual Eastern Conference, Skytop, Pennsylvania, on May 14-16, 2008

L. Anderson and J. B. Cardell (2008). **Reducing Wind Power Variability in Day Ahead Electricity Markets.** Presentation at the 41st HICSS Conference. Kona, Hawaii. January 2008.

L. Anderson and J. B. Cardell (2008). “**Toward the Management of Uncertainty in Wind Generation.**” Canadian Operational Research Annual Conference. Quebec City, Quebec. May 2008.

- L. Li & L. Anderson (2007). “**Inflow Forecasting by Artificial Neural Networks for Hydropower Plants.**” Canadian Operational Research Annual Conference. London, Canada. May 2007.
- L. Anderson and M. Davison (2005). “**A Hybrid Model for Electricity Spot Prices**”. International Federation of Operational Research Societies Triennial Conference. Honolulu, HI USA. July 2005
- L. Anderson (2005) “**A Hybrid Model for Electricity Spot Prices in a Deregulated Market.**” Canadian Applied and Industrial Math Society, Annual Doctoral Dissertation Award Lecture. Winnipeg, MB. June 2005.
- L. Anderson and M. Davison (2005) “**Risk Management Applications using a Hybrid Model for Electricity Spot Prices.**” Canadian Operations Research Society Annual Conference. Halifax, NS. May 2005.
- L. Anderson and M. Davison (2004) “**A Hybrid Model for Electricity Spot Price: Applications to Risk Management**”. CORS/INFORMS Joint International Meeting. Banff, Alberta. May 16-19.
- L. Anderson and M. Davison, (2003) “**Development of a Hybrid Model for Pricing Electricity in Deregulated Markets**”. Canadian Operations Research Society (CORS) South Western Ontario Section Meeting, University of Western Ontario. Winner, Best Paper Prize.
- L. Anderson and M. Davison, (2002) “**Development of a System-Wide Weibull-Markov Model for Generating Capacity.**” CORS Annual Conference, Toronto. June 2-4.
- L. Anderson and M. Davison, (2001) “**A Hybrid Model for Electricity Spot Prices.**” Institute for Operations Research and Management Science (INFORMS) Annual Meeting, Miami Beach, Florida.
- L. Anderson, M. Davison and B. Marcus, (2001) “**A Discrete-Time Model of Electricity Prices.**” Mathematics of Information Technology and Complex Systems (MITACS) Finance Workshop. Montreal.
- L. Anderson, H. Rasmussen and M. Davison, (2000) “**Numerical Schemes for Pricing Fixed-Strike Asian Call Options.**” Poster Presentation. MATH 2000, McMaster University, Hamilton.
- L. Otten, L. Dennison and L. Conrad, (1998). “**A Study of the HerhofTM Biocell Composting System at Caledon, Ontario.**” Proceedings of the 8th Annual Conference. Canadian Composting Council. Ottawa. Nov. 4-6.

Technical Reports

M. Davison, L. Anderson and M. Thompson, (2002) Options on Electrical Power: A Third Report. Submitted to Director of Risk Management, Ontario Power Generation. Technical Report. 91 pages.

M. Davison, L. Anderson and M. Thompson, (2001) Options on Electrical Power: A Second Report. Submitted to Director of Risk Management, Ontario Power Generation. Technical Report. 105 pages.

M. Davison, L. Anderson and B. Marcus, (2000) Options on Electrical Power: An Interim Report. Submitted to Director of Risk Management, Ontario Power Generation. Technical Report. 119 pages.

ACADEMIC RESPONSIBILITIES

RESEARCH RESPONSIBILITIES

- **Current Postdoctoral Associates**

Sharon X. Wang (Department of Applied Mathematics, University of Western Ontario)

TEACHING AND ADVISING RESPONSIBILITIES

- **Courses Taught (course number and name)**

- **Cornell University:**

- BEE 151 (Fall 2007, Fall 2008)

- **University of Western Ontario**

- Natural Disasters: Mitigation, Modelling and Assessment (2004, 2005)
 - Engineering Statics (2005)
 - Civil Engineering Systems (2005)
 - Applied Mathematics for Engineers (1999/2000).
 - Calculus I and II (1997/98, 1998/99).

- **Current Undergraduate Advisees (list names)**

- Sean Behan
 - Devin Cowan
 - Katherine Curtis
 - Clayton DeFisher
 - Hasini Edeeriwira
 - Jonathon Goldsmith
 - James Gonos
 - Pen Jui (Ben) Hung
 - Michael Adam Katz
 - Erik Kopache
 - Andrew Maidhof
 - Lauren Matlock
 - Yevgeniya Mogilevshaya
 - Mrlilini Moldak
 - Lindsay Paige O'Hara
 - Leah Roldan
 - Bong-Kyo Seo
 - Jennifer Yang

- **Current Teaching Assistants (graduate & undergraduate) and Other Teaching Support Professionals Supervised (list names)**
 - Matthew Balestrino
 - Yumen Celina Chee
 - Jonathon Cohen
 - Hasini Ediriweera
 - Miriam Goler
 - Ryan O'Neil

- **Current Undergraduate Research Assistants**
 - Jessica Bloom
 - Jeffrey Roshko
 - Clayton Munnings
 - Alice Yu

EXTENSION/OUTREACH RESPONSIBILITIES

0 % Formal appointment in Extension

0 % Estimation of time spent in outreach activities (other than or in addition to formal appointment in Extension)

GRADUATE FIELD MEMBERSHIPS

Biological and Environmental Engineering, Cornell University

Applied Mathematics, University of Western Ontario, Canada

Civil and Environmental Engineering, University of Western Ontario, Canada

GRADUATE MAJORS

Lin Li. (2007) M.E.Sc. Civil and Environmental Engineering, University of Western Ontario, Canada. "Reservoir Inflow Forecasting by Artificial Neural Networks."

Natasha Kirby, Expected Completion June 2010. Ph.D. Applied Mathematics, University of Western Ontario, Canada.

GRADUATE MINORS

Xueying Liu, (2008) M.E.Sc. Civil and Environmental Engineering, University of Western Ontario, Canada. "Mobility of Carbon Nanotubes in Groundwater Systems."

Matt Balestrino, (2009). M.Eng, Biological and Environmental Engineering, Cornell University.

Rachel Dunn, Expected completion 2009. Ph.D. Biological and Environmental Engineering, Cornell University.

OTHER CURRENT PROFESSIONAL ACTIVITIES

PROFESSIONAL SOCIETIES

- IEEE – Power Engineering Society
- IEEE – Women in Engineering
- INFORMS – Institute for Operations Research and Management Sciences
- CORS – Canadian Operational Research Society

OTHER CURRENT PROFESSIONAL CONTRIBUTIONS

Conferences Organized:

Canadian Operations Research Society Annual Conference 2007 (Conference Co-Chair)

Academic Reviewer:

IEEE Transactions on Power Systems

Journal of Industrial and Management and Optimization

Hawaii International Conference on System Sciences