

Curriculum Vitae – Ulrich G. Haussmann

B.Sc. Applied Mathematics, University of Toronto, 1966

Ph.D. Applied Mathematics, Brown University, 1970

Positions at University of British Columbia, Department of Mathematics:

<i>Post-Doctoral Fellow</i>	1970
<i>Assistant Professor</i>	1970 - 1977
<i>Associate Professor</i>	1977 - 1982
<i>Professor</i>	1982 – 2007
<i>Professor Emeritus</i>	2007 -
<i>Department Head</i>	1994 – 1997
<i>Acting Head</i>	July – Sept, 2002

Visiting Positions

<i>U. de Grenoble</i>	1975-1976
<i>U. de Paris</i>	1983
<i>U. de Provence</i>	1984
<i>U. degli Studi di Bari</i>	1997
<i>U. di Roma "La Sapienza"</i>	2004

Students

Ph.D.

<i>Storm, Andrew</i>	1992
<i>Chiarolla, Maria</i>	1992
<i>Suo, Wulin</i>	1994

M.Sc.

<i>Lee, Linda</i>	1973
<i>Tse, Wilfred</i>	1987
<i>Han, Bing</i>	1996
<i>Sakellaris, Kostis</i>	2000
<i>Ho, Andy</i>	2000
<i>Rodrigues, Jose</i>	2001
<i>Lai, Manpo</i>	2001
<i>Dion, Valerie</i>	2001
<i>Chan, Daniel</i>	2001
<i>Reich, Ulrike</i>	2002

Chang, Bo-Young 2002
Clegg, Gillian 2003
Farhadi, Hamid 2003
Mititica, Gabriel 2003
Bandic, Ivan 2004
Rivas-Cortez, R. 2004
Halasan, Florina 2004
Chou, Steve 2005
Wang, Stephen 2005
Farrokh, Arsalan 2007

Committees

NSERC Grant Selection Committee for mathematics, 1989 – 1992.
International Federation for Information Processing, Technical Committee 7, Working Group 7.7, for Stochastic Optimization, 1988-1997.
MITACS Board of Directors, 2002/3.

Editorships

Assoc. Editor, SIAM J. Control and Optimization, 1990 - 1994.

Keynote Addresses

Dynamic Programming and Variational Inequalities in Finance, Plenary Address, 19th Conference of the Associazione per la Matematica Applicata alle Scienze Economiche e Sociali, Pugnochiuso di Vieste, Italy, Sept. 1995.

Major Research Initiative

Modeling, Trading and Risk in the Market, MITACS - NCE project,
Leader: 1999-2003,
Local coordinator: 2005-2007.

Publications

Optimal stationary control with state and control dependent noise, *SIAM J. Control* 9 (1971), 184-198.

Abstract foodwebs in ecology, *Mathematical Biosciences* 11 (1971), 291-316.

- On the optimal long-run control of Markov renewal processes, *J. Math. Anal. Appl.* 36 (1971), 123-140.
- A power series expansion, *Problem 75-3, SIAM Rev.* 17(1975), 168.
- The inversion theorem and Plancherel's theorem in Banach space, *Pacific J. Math.* 43 (1972), 585-600.
- Bochner's theorem in infinite dimensions, (with P.L. Falb), *Pacific J. Math.* 43 (1972), 601-618.
- Stabilization of linear systems with multiplicative noise, in *Lecture Notes in Mathematics* 294 (R.F. Curtain ed.), 125-139, Springer-Verlag, Berlin 1972.
- On the principle of competitive exclusion, *J. Theoretical Population Biology* 4 (1973), 31-41.
- Stability of linear systems with control dependent noise, *SIAM J. Control* 11 (1973), 382-394.
- On the existence of moments of stationary linear systems with multiplicative noise, *SIAM J. Control* 12 (1974), 99-105.
- Coexistence of species in a discrete system, in *Lecture Notes in Biomathematics* (P. Van den Driesche ed.), 73-82, Springer Verlag, Berlin, 1974.
- General necessary conditions for optimal control of stochastic systems, *Mathematical Programming Studies* 6 (1975), 30-48.
- A new stochastic time-optimal control problem, with W.J. Anderson & A. Boyarsky, *SIAM J. Control and Optimization* 16 (1978), 1-15.
- Asymptotic stability of the linear Ito equation in infinite dimension, *J. Math. Anal. Appl.* 65 (1978), 219-235.
- Functionals of Ito processes as stochastic integrals, *SIAM J. Control and Optimization* 16 (1978), 252-269.
- On the stochastic maximum principle, *SIAM J. Control and Optimization* 16 (1978), 236-259.
- On the integral representation of functionals of Ito processes, *Stochastics* 3 (1979), 17-27.
- On the adjoint process for optimal control of diffusion processes, *SIAM J. Control and Optimization* 19 (1981), 221-241.
- Some examples of optimal stochastic controls, *SIAM Review* 23 (1981), 292-307.

- Existence of partially observable stochastic optimal controls, in *Stochastic Differential Systems*, Lecture Notes in Control and Information Sciences 36 (1981), 79-84.
- Extremal controls for completely observable diffusions, in *Advances in Filtering and Optimal Stochastic Control* (Fleming and Gorostiza ed.), Lecture Notes in Control and Information Sciences 42 (1982), 149-160.
- Optimal control of partially observed diffusions via the separation principle, in *Stochastic Differential Systems* (Kohlman and Christopheit ed.), Lecture Notes in Control and Information Sciences 43 (1982), 302-311.
- On the existence of optimal controls for partially observed diffusions, *SIAM J. Control and Optimization* 20 (1982), 385-407.
- On the approximation of extremal stochastic controls, *J Optimiz. Theory Applic.* 40 (1983), 433-450.
- Extremals in stochastic control theory, in *Systems Modeling and Optimization* (Thoft-Christensen ed.), Lecture Notes in Control and Information Sciences 59 (1984), 461-470.
- Time reversal of diffusions, with E. Pardoux, in *Stochastic Differential Systems*, Lecture Notes in control and Information Sciences 69 (1985), 176-182.
- On the drift of a reverse diffusion, in *Stochastic Differential Systems*, Lecture Notes in Control and Information Sciences 69 (1985), 164-175.
- L'équation de Zakai et le problème séparé du contrôle optimal stochastique, *Seminaire de Probabilite XIX*, Lecture Notes in Mathematics 1123 (1985), 37-62.
- The maximum principle for optimal control of diffusions with partial information, in *Stochastic Optimization* (Arkin, Shiraev, Wets ed.), Lecture Notes in Control and Information Sciences 81(1986), 50-58.
- Existence of optimal Markovian controls for degenerate diffusions, in *Stochastic Differential Systems*, Lecture Notes in Control and Information Sciences 78 (1986), 171-186.
- Time reversal of diffusions, with E. Pardoux, *Annals of Probability*, 14 (1986), 1188-1205.
- The maximum Pprinciple for optimal control of diffusions with partial information, *SIAM J. Control and Optimization* 25 (1987), 341-361.
- Examples of optimal controls for linear stochastic control systems with partial information, *Stochastics* 22 (1987), 289-323.

- Some examples of the optimal control of diffusions with partial observation and non-Gaussian initial condition, in *Stochastic Differential Systems*, Lecture Notes In Control and Information Sciences 96 (1987), 301-309.
- Non-linear filtering - the degenerate case, in *Stochastic Differential Systems, Stochastic Control Theory and Applications* (W. Fleming and P. L. Lions, ed.), Springer-Verlag, 1988, 187-204.
- A conditionally almost linear filtering problem with non-Gaussian initial condition, with E. Pardoux, *Stochastics* 23 (1988), 241-275.
- Synthesis of optimal controls, in *Stochastic Systems and Optimization* (J. Zabczyk ed.), Lecture Notes in Control and Information Sciences 136 (1989), 309-317.
- Stochastic variational inequalities of parabolic type with E. Pardoux, *Applied Math. Optimization* 22 (1989), 163-192.
- Review of *Linear Systems and Optimal Control*, Chui and Chen, *SIAM Review*, 31(1989), 696-698.
- On the existence of optimal controls (with J. P. Lepeltier), *SIAM J. Control and Optimization* 28 (1990), 851-902.
- Stochastic adaptive control with small systems perturbations, with Q. Zhang, *Stochastics* 32 (1990), 109-144.
- Optimal Control of Diffusions with Small Observation Noise, with Q. Zhang, in *Applied Stochastic Analysis* (M.H.A. Davis and R.J. Elliott eds.), *Stochastics Monographs* 5(1991), 237-263.
- Stochastic P.D.E.'s with Unilateral Constraints in Higher Dimensions, in *Stochastic Partial Differential Equations and Applications* (G. DaPrato and L. Tubaro eds.), *Pitman Research Notes in Mathematics* 268 (1992), 204-215.
- A probabilistic approach to the generalized Hessian, *J. Math. Operations Research* 17 (1992), 411-443.
- Discrete time stochastic adaptive control with small observation noise, with Q. Zhang, *J. App. Math. Optimization* 25 (1992), 303-330.
- The monotone follower problem, with M. Chiarolla, *Proc. 31st C.D.C.*, Tucson, Dec. 1992, 2053-2055.
- Generalized solutions of the Hamilton-Jacobi equation of stochastic control, *SIAM J. Control and Optimization* 32 (1994), 728-743.

- The free boundary of the monotone follower, with M. Chiarolla, *SIAM J. Control and Optimization* 32 (1994), 690-727.
- The optimal control of the cheap monotone follower, with M. Chiarolla *Stochastics* 4 (1994), 99-128.
- Singular optimal control for stochastic differential equations, with W. Suo, Proc. 33rd CDC, Orlando, Dec. 1994.
- Existence of singular optimal control laws for stochastic differential equations, with W. Suo, *Stochastics* 48 (1994), 249-272.
- The stochastic maximum principle for a singular control problem, with A. Cadenillas, *Stochastics* 49 (1994), 211-237.
- Singular optimal stochastic controls I: existence, with W. Suo, *SIAM J. Control and Optimization* 33 (1995), 916-936.
- Singular optimal stochastic controls II: dynamic programming, with W. Suo, *SIAM J. Control and Optimization* 33 (1995), 937-959.
- Managing inflation: a control problem, with Maria B. Chiarolla, 34th IEEE Conference on Decision and Control (1995), New Orleans, 2869-2871.
- Control of inflation: a singular stochastic control problem, with B. Han and Maria Chiarolla, 36th IEEE Conference on Decision and Control (1997), San Diego, 2785-2790.
- Optimal control of inflation: a central bank problem, with Maria Chiarolla, *SIAM J. Control and Optimization* 36 (1998), 1099-1132 .
- Optimal portfolio selection with transaction costs, with P. Collings, in *Control of Distributed Parameter and Stochastic Systems* (S. Chen, X. Li, Y. Yong and X. Y. Zhou, eds.), 189-198, Kluwer, Norwell, Mass. 1999.
- Controlling inflation: the infinite horizon case, with M. Chiarolla, *J. Appl. Math. Optimization* 41 (2000), 25-50.
- Equilibrium in a stochastic model with consumption, wages and investment, with M. Chiarolla, *J. Mathematical Economics* 35 (2001), 311-344.
- Optimal portfolio selection and compression in an incomplete market, with N. Dokuchaev, *Quantitative Finance* 1 (2001), 336-345.

A dynamic investment model with control on the portfolio's worst case outcome, with Y. Zhao and W. Ziemba, *Mathematical Finance* 13 (2003), 481-501.

Portfolio optimization under partial information: stochastic volatility in a hidden Markov model, with J. Sass, in *Operations Research Proceedings* (2003) (D. Ahr, R. Fahrion, M. Oswal, G. Reinelt eds.), Springer, Berlin, 387-394.

Optimizing the terminal wealth under partial information: the drift process as a continuous Markov chain, with J. Sass, *Finance and Stochastics* 8 (2004), 553-578.

Optimal terminal wealth under partial information, with J. Sass, in *Mathematics of Finance* (G. Yin, Q. Zhang eds.) *Contemporary Mathematics* 351 (2004), 171 - 185.

The modified willow tree algorithm, with L. Yan, *J. Computational Finance* 8 (2005), 63-79.

Explicit solution of a stochastic irreversible investment problem and its moving threshold, with M. Chiarolla, *Mathematics of Operations Research* 30 (2005), 91-108, Erratum vol. 31 (2006), 432.

Multivariable utility functions, with M. B. Chiarolla, *SIOPT* 19(2008), 1511 - 1533.

On a stochastic irreversible investment problem, with M. B. Chiarolla, *SICON* 48(2009), 438 - 462.

Equilibrium in a production economy, with M. B. Chiarolla, preprint 2009.

A stochastic equilibrium economy with irreversible investment, with M. B. Chiarolla, preprint 2009.

Books

A Stochastic Maximum Principle for Optimal Control of Diffusions, Pitman Research Notes in Mathematics 151, Longman, Harlow, U.K., 1986.