TEACHING DOSSIER
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Department of Psychology, Faculty of Arts, University of Alberta
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1. TEACHING AWARDS:

Name of Award	Year	Awarded by:
McCalla Professorship	2007-2008	Faculty of Arts, University of Alberta
Academic Staff Award	1999	Graduate Students Association, University of Alberta
Teaching Award	1998	Department of Psychology, University of Alberta

2. TEACHING PHILOSOPHY:

***Certum quod factum* (Giambattista Vico, 1710) – "one is certain only of what one builds".** I create an environment in which students learn by building – reading, discussing, writing, programming, simulating, experimenting – as they explore the exciting interdisciplinary ideas at the foundation of cognitive science.

Some Implications of My Philosophy for Undergraduate Students

- ✓ Exposing studings to readings and topics from the core disciplines of cognitive science (psychology, linguistics, philosophy, computer science, and neuroscience)
- ✓ Providing students hands-on experience with advanced technology (artificial neural network simulations, robot construction and programming)
- ✓ Creating opportunities for collegial and collaborative research with students in my lab, from project inception to journal publication. Some recent examples of projects with undergraduate students as authors are:
  - o Dawson, M.R.W., Dupuis, B., & Wilson, M. (2010). *From Bricks to Brains: The Embodied Cognitive Science of LEGO Robots.* Athabasca University Press, Edmonton.
  - o Dawson, M.R.W., Kelly, D.M, Spetch, M.L., & Dupuis, B. (2010). Using perceptrons to explore the re-orientation task. *Cognition, 114*, 207-226.

Some Implications of My Philosophy for Graduate Students

- ✓ Training in a truly interdisciplinary environment, which mixes together students from different disciplines
  - o I have graduated PhD students in Psychology, Philosophy, and Computing Science
  - o My graduates can be found as academic members of psychology, educational psychology, philosophy, neuroscience, and computer science departments
- ✓ Exposure to a wide variety of research practices, including psychophysical experimentation, computer programming and simulation, robot construction and programming, multivariate statistics, formal analysis
- ✓ Learning in a supportive environment that attempts to foster all aspects of students' professional development (research, teaching, communicating, writing, career decisions)
- ✓ Working in a setting that views graduate students as apprentices, as colleagues, and as collaborators
  - o Financial support for research equipment and for attending national and international conferences
  - o Many of my research articles are co-authored with my graduate students, and they are frequently first authors on these papers
  - o My students are free to pursue independent projects, and many have published single-authored manuscripts while members of my lab

3. MAJOR UNDERGRADUATE TEACHING ACTIVITIES (Past 5 Years):

- ✓ I have created and deliver an undergraduate cognitive science stream of courses to psychology students (PSYCO 354 'Foundations of Cognitive Science', PSYCO 452 'Minds and Machines', PSYCO 457 'Embodied Cognitive Science). These courses often attract graduate students from Philosophy or Electrical and Computer Engineering
- ✓ I have supervised research projects for several independent studies students (S. Jans, J. Hathaway, B. Koch-Hale, J. Han). These projects have all involved artificial neural network research, and the capping exercise has been a poster presentation at the Royce Conference

4. COURSES TAUGHT:

Undergraduate Courses

Advanced Cognitive Psychology, Advanced Perception, Cognitive Psychology, Embodied Cognitive Science, Foundations of Cognitive Science, Independent Studies , Introductory Psychology, Introduction to Statistics , Minds and Machines, Research in Cognitive Science, Topics in Theoretical Psychology, Workshop on Artificial Neural Networks

Graduate Courses

Computation and Cognition, Critical Appraisal of the New Connectionism, Varieties of Connectionism: A Critical Survey, Advanced Perception, Research in Cognitive Science, Advanced Topics in Cognitive Science, Independent Studies

5.   STUDENT SUPERVISION (GRADUATE AND UNDERGRADUATE):

PhD Students

Name, Year, Degree	Thesis Title	Cosupervisor	Current Position
Stefan Kremer 1992-1995, Ph.D. Computing Science	*A theory of grammatical induction in the connectionist paradigm.*	Dr. Rene Elio, Computing Science	**Professor, Computing Science, Guelph University**
Istvan Berkeley 1993-1997, Ph.D. philosophy	*On connectionism.*	Dr. Jeff Pelletier, Computing Science	**Associate Professor, Philosophy, University of Louisiana at Lafayette**
Dave Medler, 1994-1998, Ph.D. Psychology	*The crossroads of Connectionism: Where do we go from here?*		**Assistant Teaching Professor, Undergraduate Advisor, Psychology, University of Victoria**
Corinne Zimmerman, 1998-2000 Ph.D., Psychology	*A network interpretation approach to the balance scale task.*	Dr. Gay Bisanz, Psychology	**Professor, Psychology, Illinois State University**
Jacqueline Leighton, 1998-99 Ph.D., Psychology	*Reasoning according to the path of least resistance*	Dr. Don Heth, Psychology	**Professor, Educational Psychology, University of Alberta**
Monica Valsangkar, 1996-2001, Ph.D., Psychology	*Hemispheric processing in object-based visual attention*	Dr. Alan Kingstone, Psychology	**Adjunct Professor, Psychology, Queen's University**
Leanne Willson, 1997-2001, Ph.D. Psychology	*Connectionist models of discrimination learning*		**Associate Professor, Psychology, The King's University**
Patricia Boechler, 1998-2002, Ph.D., Psychology	*Hypertext navigation tools as mechanisms for the investigation of hyperspace properties*		**Professor, Educational Psychology, University of Alberta**
Darren Piercey, 1998-2002, Ph.D. Psychology	*The referent model of lexical decision*		**Professor, Psychology, University of New Brunswick**
Reiko Graham, 2001-2002, Ph.D. Psychology	*Characterizing general and face specific ERP correlates of face memory*	Dr. Roberto Cabeza, Psychology	**Professor, Psychology, Texas State – San Marcos**
Paul Siakaluk, 2001-2002, Ph.D. Psychology	*Strategic control of semantic processing in visual word recognition*	Dr. Lori Buchanan, Psychology	**Professor and Chair, Psychology, University of Northern British Columbia**
Greg Sadesky, 2002 – 2007, Ph.D. Educational Psychology	*Determining structure in test performance: An artificial neural network approach*	Dr. Jackie Leighton, Educational Psychology	**Psychometrician, Yardstick, Testing and Training Experts, Vernon BC**

Masters Students

Name, Year, Degree	Thesis Title	Current Position
Andrew Macquistan 1988-1990, M.A.	*A theory of grammatical induction in the connectionist paradigm.*	**Research assistant, UBC Center for Community Child Health Research**
Kevin Shamanski 1992-1994, M.Sc.	*On connectionism.*	**Owner and Director, Transmogrification Services Inc.**
David Medler, 1992-1994 M.Sc.	*The crossroads of connectionism: Where do we go from here?*	**See above, PhD supervision**
Brian Dupuis 2010 – 2012, M.Sc.	*The cognitive science of reorientation*	

Honours Students

Name, Year, Degree	Thesis Title	Current Position
Jasen Zielinski, 2015-2016, B.Sc. Psychology	*Neuronal regulation and gradient descent*	
Matthew Duncan, 1990-1992, B.Sc. Psychology	*Modeling mental rotation in a Hopfield net.*	**Head, Collaborative Performance and Learning Section, DRDC Toronto**
Tim Gannon, 91-93 B.Sc. Supervisor	*A connectionist model of the early visual pathway.*	**Teacher, Tempo School, Edmonton**
Tom Cervenka, 93-95 B.Sc. Supervisor	*Autonomous delta-rule and backpropagation networks.*	**Java/web instructor and programmer, Edmonton**

6. SUPERVISORY/EXAMINING COMMITTEES FOR GRADUATE STUDENTS:

Membership On PhD Committees

Cameron Wild , Psychology, 1988 – 1993	Josie Aubrey, Psychology, 1991 - 1992	David Hall, Psychology, 1992 – 1994
Karsten Loepelman, Psychology,1992 - 1995	Michael Carbonaro, Educational Psychology, 1995 - 1997	Janice Snyder, Psychology,1997 - 2000
Mason Cash , Philosophy, 1998 - 2000	Anthony Chaston, Psychology, 1998 - 2002	Christopher Peet, Psychology, 2000
James Bachman, Philosophy, 2014 - 2017	Jason Schlauwitz, Electrical and Computer Engineering, 2017-pres	

Examiner, PhD Candidacy Exam

H. Masoud, Philosophy, 2014	N. Bullot, Philosophy, 2014	S. Mousavian, Philosophy, 2007
Ying Cui, Educational Psychology, 2006	Adriel Lau, Electrical and Computer Engineering, 2005	Michael Kiefte, Linguistics, 1999
B. Giesbrecht, Psychology, 1999	S. Downes, Philosophy, 1991	S. Hensch, Psychology, 1989

External Examiner, DMus Recital

- E. Wong (violin recital, Convocation Hall, April 10 2018)
- F. Amorim (viola recital, Convocation Hall, January 26 2014)
- F. Amorim (viola recital, Convocation Hall, April 17 2014)

Graduate Thesis Examiner

- E. Howe, Philosophy. *Rational acceptability and coherence theories of justification*, (M.A., 1989).
- S. Winestock, Psychology. *The role of the frame reference in propositional representation of spatial displays*, (M.A., 1987).
- D. Perl, Computing Science. *ANNIE: An artificial neural network for image enhancement.* (M.Sc., 1992).
- A. Sharpe, Computing Science*. THINK: Thoughtful Hypotheses for incorporating new knowledge.* (MSc, 1993).
- Z. Fang, Mathematical Sciences. *Robust extrapolation designs for linear models.* (PhD, 1999).

- M. Kiefte, Linguistics. *The perception of spectrally and temporally distorted prevocalic stop consonants* (PhD, 2000).
- T. Aviran, Philosophy. *On content and truth-conditions.* (PhD, 2002).
- A.M. Grbavec, Computer Science, Simon Fraser University. *Second-Order Generalization in Neural Networks* (PhD, 2004).
- J. Stenberg, Philosophy. *Virtual Reality and McDermott's Model of the Mind.* (M.A., 2005).
- O. Ellefson, Humanities Computing. *A Posthuman Investigation: Assessing the Suitability of Conscious-ness to Digital Duplication.* (M.A., 2005)
- V. Kumar, Philosophy. *Knowing-How.* (M.A., 2007)
- Y Cui, Educational Psychology. *The Hierarchy Consistency Index: A Person-fit Statistic for the Attribute Hierarchy Method.* (Ph.D, 2007)
- A. Lau, Electrical and Computer Engineering. *Immune Programming.* (PhD, 2009)
- T. Murphy, Philosophy, *Cognitive homology: psychological kinds as biological kinds in an evolutionary developmental cognitive science* (M.A. 2012)
- J. McHan, Music. Examiner at Master's music recital (double bass), April 22 (M.A. 2013)
- H. Masoud, Philosophy. *The Epistemology of Natural Deduction.* (PhD, 2015)
- N. Bullot, Philosophy. *Tracking and Controlling Persons.* (PhD, September 21, 2105).

7.   TEACHING INNOVATION

✓ Wrote six cognitive science textbooks, three published by Blackwell: *Understanding Cognitive Science* (1998), *Minds and Machines: Connectionism and Psychological Modeling*, (2004), and *Connectionism: A Hands-on Approach* (2005), two by Athabasca University Press: *From Bricks To Brains: The Embodied Cognitive Science of LEGO Robots* (2010); *Mind, Body, World: Foundations of Cognitive Science* (2013); *Connectionist Representations of Tonal Music: Discovering Musical Patterns by Interpreting Artificial Neural Networks (2018)*

✓ Developed extensive web support for my classes for delivery of lecture materials, margin notes on text, exam feedback, and software for my lab cours.   Access to my course web sites is available from: http://www.bcp.psych.ualberta.ca/%7emike/Pearl_Street/Course/index.html

✓ Introduced building, programming, and observing of LEGO robots to undergraduate psychology students. Examples of student videos can be seen at: http://www.bcp.psych.ualberta.ca/%7emike/StudentRobot.html

✓ Developed web-based and widely accessed Dictionary of Cognitive Science as well as a Gallery of Cognitive Scientists. Both are available from my home page: http://www.bcp.psych.ualberta.ca/~mike/

8.   ADMINISTRATION ASSOCIATED WITH TEACHING AND STUDENTS

Departmental

- 2007 – pres   Arts Library Representative
- 2006 – pres   Manager, D.E. Smith Reading Room In Psychology
- 2006   Member, Ad Hoc Committee To Review Graduate Student Assessments
- 2004 - 2005   Member, Ad Hoc Committee On Graduate Evaluation And Timelines
- 2000 – 2001   Member, Graduate Curriculum Committee
- 1997 - 1998   Member, Graduate Recruitment Committee
- 1988 - 1990   Member, Graduate Admissions Committee

Faculty

- 2006 - 2014   Member, Mactaggart Writing Award Adjudication Committee

Regional/National/International

- Appraiser of the Cognitive Science Graduate Program at Carleton University for the Ontario Council On Graduate Studies (January, 2004)
- Appraised Carleton University's proposed PhD program in cognitive science for the Ontario Council On Graduate Studies (September, 1996)