

# Christopher R Madan

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## AREAS OF SPECIALIZATION

human memory; associative learning, mathematical modeling of memory; neuroimaging of memory; emotional memory; reinforcement learning; mental imagery; mnemonic strategies

## Education & Training

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## EDUCATION

Ph.D. in Psychology (*Behaviour, Systems, and Cognitive Neuroscience*) [Expected Apr 2013]

University of Alberta, Edmonton, AB, Canada

*Co-supervisors:*

Dr. Jeremy Caplan (Department of Psychology & Centre for Neuroscience)

Dr. Esther Fujiwara (Department of Psychiatry & Centre for Neuroscience)

B.Sc. Specialization in Psychology, with Distinction [Graduated Nov 2009]

University of Alberta, Edmonton, AB, Canada

*Supervisor:*

Dr. Jeremy Caplan (Department of Psychology & Centre for Neuroscience)

## OTHER TRAINING

University of Alberta Centre for Teaching and Learning – Teaching Enhancement Series

UAPWC Institutional Animal User Training Program – Part I

*The Care and Use of Animals in Research, Teaching and Testing*

UAPWC Institutional Animal User Training Program – Part II

*The Care and Use of The Pigeon in Research*

## TECHNICAL SKILLS

**Excels with:** MATLAB, Adobe Creative Suite (Photoshop, Illustrator, InDesign, Dreamweaver, Acrobat Professional), Apple KeyNote, Microsoft Office (Word, Excel, PowerPoint), pyEPL

**Adept with:** SPSS, LaTeX, Python, E-Prime, PHP, various operating systems (Microsoft Windows, Mac OS X, and several Linux distributions)

**Familiar with:** AppleScript, bash shell scripting, R, Octave, EEGLAB

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## Professional Experience

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### PSYCHOPHYSIOLOGY & NEUROIMAGING LABORATORY

Principle Investigator: Dr. Anthony Singhal

Department of Psychology & Centre for Neuroscience, University of Alberta, Edmonton, AB, Canada

*Project Scientist* (2010-pres)

*Project:* Investigating the influence of motor imagery on human memory performance

### COMPARATIVE SPATIAL COGNITION LABORATORY

Principle Investigator: Dr. Marcia Spetch

Department of Psychology, University of Alberta, Edmonton, AB, Canada

*Associate Member* (2009-pres)

### DR. ESTHER FUJIWARA'S LABORATORY

Principle Investigator: Dr. Esther Fujiwara

Department of Psychiatry & Centre for Neuroscience, University of Alberta, Edmonton, AB, Canada

*PhD student* (2009-pres)

*Associate Member* (2008-2009)

### COMPUTATIONAL MEMORY LABORATORY

Principle Investigator: Dr. Jeremy Caplan

Department of Psychology & Centre for Neuroscience, University of Alberta, Edmonton, AB, Canada

*Lab administrator & PhD student* (2009-pres)

*Lab administrator & undergraduate research assistant* (2006-2009)

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## Research Funding

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**2010**

Queen Elizabeth II Scholarship - Doctoral Level (QEII-D)

**2009**

CIHR Frederick Banting and Charles Best Canada Graduate Scholarship - Master's Level (CIHR CGS-M)

*Project:* Is memory for associations better for information that is more self-important?

Queen Elizabeth II Scholarship - Doctoral Level (QEII-D) [Declined]

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## Awards & Honors

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**2010**

Society for Mathematical Psychology Student Travel Award

Department of Psychology Skitch Travel Award

Organization for Computational Neuroscience Student Travel Award

Queen Elizabeth II Scholarship - Doctoral Level (QEII-D)

**2009**

Society for Mathematical Psychology Student Travel Award

Walter H Johns Graduate Fellowship

CIHR Frederick Banting and Charles Best Canada Graduate Scholarship - Master's Level (CGS-M)

Queen Elizabeth II Scholarship - Doctoral Level (QEII-D) [Declined]

Faculty of Science Dean's Honor Roll

**2008**

Jason Lang Scholarship

Faculty of Science Highlighted "Getting Involved in Science" Student for November

Laurence Decore Award for Student Leadership

**2007**

Peter Jang Leadership Award, Honorable Mention

**2006**

Jason Lang Scholarship

NASA Family Member Award

**2005**

University of Alberta Entrance Scholarship

Alexander Rutherford Scholarship

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## Publications & Presentations

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† – FORTHCOMING

### REFEREED PUBLICATIONS

2. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (in preparation). Emotion does not enhance association-memory.
1. **Madan, C. R.**, Glaholt, M. G., & Caplan, J. B. (2010). The influence of item properties on association-memory. *Journal of Memory and Language*, 63, 46-63.

### NON-REFEREED PUBLICATIONS

3. **Madan, C. R.**, & Caplan, J. B. (2010). A systematic exploration of model-mechanisms for interactions between item- and association-memory in paired-associate learning. *BMC Neuroscience*, 11 (Suppl 1), P93.
2. **Madan, C. R.** (2010). Neuromarketing: the next step in market research? *Eureka*, 1, 34-42.
1. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2009). Emotion selectively impairs associative memory. *BMC Neuroscience*, 10 (Suppl 1), P341.

### ORAL PRESENTATIONS

5. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2010, March). *Emotion and contextual memory*. Oral presentation at the Joseph R Royce Research Conference in the Department of Psychology at the University of Alberta, Edmonton, AB.
4. **Madan, C. R.**, Glaholt, M. G., & Caplan, J. B. (2010, February). *The influence of item properties on association-memory: Frequency, imageability, and cued recall*. Oral presentation at the University of Alberta Department of Psychology Cognition Seminar Series, Edmonton, AB.
3. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2009, May). *Emotion hurts association learning*. Oral presentation at the University of Alberta Psychiatry Research Day, Edmonton, AB.
2. **Madan, C. R.**, Glaholt, M. G., & Caplan, J. B. (2008, November). *The influence of single-item properties on association memory*. Oral presentation at the University of Alberta Department of Psychology Cognition Seminar Series, Edmonton, AB.
1. **Madan, C. R.**, Glaholt, M. G., & Caplan, J. B. (2007, October). *Imagery and the structure of word associations*. Oral presentation at the University of Alberta Department of Psychology Cognition Seminar Series, Edmonton, AB.

## POSTER PRESENTATIONS

16. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2010, August). *Emotion and association-memory*. Poster presentation at the Annual Conference of the Cognitive Science Society, Portland, OR.
15. **Madan, C. R.**, & Caplan, J. B. (2010, August). *Model-mechanisms for effects of item- on association-memory in paired-associate learning*. Poster presentation at the Annual Society for Mathematical Psychology Meeting, Portland, OR.
14. **Madan, C. R.**, & Caplan, J. B. (2010, July). *A systematic exploration of model-mechanisms for interactions between item- and association-memory*. Poster presentation at the Annual Organization for Computational Neuroscience Meeting, San Antonio, TX.
13. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2010, May). *Emotion and association-memory*. Poster presentation at the Annual Conference of the University of Alberta Psychiatry Research Day, Edmonton, AB.
12. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2010, May). *Emotion does not always enhance contextual memory*. Poster presentation at the Banff Annual Seminar in Cognitive Science, Banff, AB.
11. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2010, April). *Emotion does not always enhance contextual memory*. Poster presentation at the Annual Context and Episodic Memory Symposium, Philadelphia, PA.
10. **Madan, C. R.**, & Caplan, J. B. (2009, August). *Influence of single-item properties on cued recall in distributed memory models*. Poster presentation at Joint Meeting of the Society for Mathematical Psychology and European Mathematical Psychology Group, Amsterdam, Netherlands.
9. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2009, July). *Emotionality impairs memory for associations*. Poster presentation at the Annual Conference of the Cognitive Science Society, Amsterdam, Netherlands.
8. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2009, July). *Emotion selectively impairs associative memory*. Poster presentation at the Annual Organization for Computational Neuroscience Meeting, Berlin, Germany.
7. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2009, May). *Emotion hinders relational learning*. Poster presentation at the Banff Annual Seminar in Cognitive Science, Banff, AB.
6. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2009, March). *Emotion hinders relational learning*. Poster presentation at the Joseph R Royce Research Conference in the Department of Psychology at the University of Alberta, Edmonton, AB.
5. **Madan, C. R.**, Lau, C. S. M., Caplan, J. B., & Fujiwara, E. (2009, February). *Emotion hurts intentional association learning with a concurrent advantage for item learning*. Poster presentation at the Emotion Pre-Conference to the Society for Personality and Social Psychology Annual Meeting, Tampa, FL.

4. **Madan, C. R.** (2008, November). *Neuromarketing: the next step in market research?* Poster presentation at the University of Alberta Neuroscience Research Day, Edmonton, AB.
3. **Madan, C. R.**, Lau, C. S. M., Fujiwara, E., & Caplan, J. B. (2008, November). *Emotional enhancement of memory for items versus associations.* Poster presentation at the University of Alberta Neuroscience Research Day, Edmonton, AB.
2. **Madan, C. R.**, Glaholt, M. G., & Caplan, J. B. (2008, July). *The effects of single-item properties on association learning.* Poster presentation at the Annual Meeting of the Society for Mathematical Psychology, Washington, DC.
1. **Madan, C. R.**, Glaholt, M. G., & Caplan, J. B. (2008, July). *Associative symmetry generalizes to asymmetric pairs.* Poster presentation at the Annual Conference of the Cognitive Science Society, Washington, DC.

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## Teaching Experience

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### GUEST LECTURES

†PSYCO 371: Neurobiology of Learning and Memory (2010, Nov 25)

Professor: Dr. Clayton Dickson

Joint lecture on “Emotional Memory” with Adam Hughes.

My Topic: “*Emotional Memory: A Human Perspective*”.

PSYCO 371: Neurobiology of Learning and Memory (2010, Nov 4)

Professor: Dr. Clayton Dickson

Lecture on “*Cognitive Neuroscience of Memory Formation and Retention*.”

PSYCO 561: Learning and Comparative Cognition (2010, Oct 29)

Professor: Dr. Marcia Spetch

Lecture on “*Conditioning and (Neuro)marketing*.”

PSYCO 302: Introduction to Cognitive Neuroscience (2010, Oct 19)

Professor: Dr. Anthony Singhal

Lecture on “*Memory for Important Things*.”

PSYCO 371: Neurobiology of Learning and Memory (2010, Jul 8)

Professor: Dr. Yvonne Wong

Lecture on “*Paradigms, Ethics, & Methods in Memory Research*.”

PSYCO 403/505: Computational Memory Models (2010, Apr 6)

Professor: Dr. Jeremy Caplan

Lecture on “*Influence of single-item properties on cued recall in distributed memory models.*”

PSYCO 371: Neurobiology of Learning and Memory (2010, Mar 4)

Professor: Dr. Jeremy Caplan

Joint lecture on “Emotional Memory” with Adam Hughes.

My Topic: “*Emotional Memory: A Human Perspective.*”

PSYCO 403/505: Computational Memory Models (2010, Jan 19)

Professor: Dr. Jeremy Caplan

Joint lecture on “*Basic linear algebra, MATLAB, and memory models*” with Yang Liu.

PSYCO 371: Neurobiology of Learning and Memory (2009, Mar 3)

Professor: Dr. Jeremy Caplan

Joint lecture on “Emotional Memory” with Adam Hughes.

My Topic: *Emotional Memory: A Human Perspective.*

## MARKING ASSISTANT

PSYCO 377: Human Neuropsychology (2010 Winter, 2009 Fall)

PSYCO 371: Neurobiology of Learning and Memory (2010 Winter)

PSYCO 302: Introduction to Cognitive Neuroscience (2009 Fall)

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## Supervision

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*Assisted in supervising research assistants:*

Isabel Lek (2010, May – present; Dr. Jeremy Caplan)

Bevin Cheng (2010, May – present; with Dr. Jeremy Caplan)

Anton Poon (2010, Jan – 2010, Apr; with Dr. Jeremy Caplan)

Bridgette Gerson (2009, Jun – 2009, Oct; with Dr. Jeremy Caplan and Dr. Esther Fujiwara)

Jingjing Song (2008, Sept – 2009, Apr; with Dr. Jeremy Caplan)

Christine Lau (2008 Jul – 2008, Dec; with Dr. Esther Fujiwara)

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## Professional Activities

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### REVIEWING

#### Journals

Eureka, *Editor-in-Chief & Founder* (2009-pres)  
Journal of Memory and Language, *Reviewer*

#### Conferences

Joseph R Royce Research Conference, *Organizing Committee Member & Session Chair* (2009-2010)

### SERVICE POSITIONS

#### Eureka

*Co-Founder & Editor-in-Chief* (2009-pres)

#### Memory Perspectives Reading Group (MPRG)

*Founder & Chair* (2009-pres)

#### University of Alberta's Neuroscience Graduate Students' Association (NGSA)

*Member-at-Large* (2009-pres)

#### University of Alberta's Graduate Psychology Association (GPA)

*Webmaster* (2009-pres)

#### Association for Psychological Science (APS)

*Campus Representative* (2009-2010)

#### University of Alberta's Undergraduate Psychology Association (UPA)

*Vice-President of General Operations & Webmaster* (2006-2009)

#### University of Alberta Science Undergraduate Society (UASUS)

*President* (2007-2008)

*Webmaster* (2006-2008)

#### University of Alberta's Neuroscience Students' Association (NSA)

*Vice-President of Communications & Webmaster* (2006-2008)

## OTHER EVENTS & PRESENTATIONS

Individual Studies & Lab Volunteering Forum, *Department of Psychology*  
*University of Alberta* (2010, Mar 22)

Topic: Individual Studies & Lab Volunteering: A Student's Perspective.

Individual Studies & Lab Volunteering Forum, *Department of Psychology*  
*University of Alberta* (2009, Mar 19)

Topic: Individual Studies & Lab Volunteering: A Student's Perspective.

University Open House

*University of Alberta* (2009, Sep 20)

## PROFESSIONAL AFFILIATIONS

Society for Mathematical Psychology (SMP) – since 2009

Cognitive Science Society (CSS) – since 2008

Alberta Centre for Aging (ACA) – since 2007