

The International Conference on Cognitive Modeling 2009 (ICCM'09)

Programme

24th - 26th July 2009

Tutorials 23rd July

Chairs

Andrew Howes

David Peebles

Rick Cooper

Conference Assistants

Nadia Ali

Joanne Hinds

Kiran Kalidindi

Whitworth Hall, Oxford Road, University of Manchester, UK

Committee

Erik Altmann, Michigan State University
Duncan Brumby, University College London
Mike Byrne, Rice University
Nick Chater, University College London
Richard Cooper, Birkbeck, University of London
Andrew Howes, University of Manchester
Fabio Del Missier, University of Trieste
Danilo Fum, University of Trieste
Simon French, University of Manchester
Wai-Tat Fu, University of Illinois
Steve Furber, University of Manchester
Fernand Gobet, Brunel University
Nicholas Gorski, University of Michigan
Glenn Gunzelmann, Air Force Research Laboratory
John Hale, Cornell University
Kevin Gluck, Air Force Research Laboratory
Kiran Kalidindi, University of Manchester
Mark Keane, University College Dublin
Juergen Kiefer, Technical University of Berlin
David Kieras, University of Michigan
Peter Lane, University of Hertfordshire
Christian Lebiere, Carnegie Mellon University
Richard Lewis, University of Michigan
Yili Liu, University of Michigan
Deryle Lonsdale, Brigham Young University
Leendert van Maanen, University of Groningen
Warren Mansell, University of Manchester
Michael Matessa, Alion Science and Technology
Claus Mobus, University of Oldenburg
Hansjoerg Neth, Max Planck Institute for Human Development
Chandrasekhar Pammi, University of Allahabad
David Peebles, University of Huddersfield
Steve Phelps, University of Essex
Frank Ritter, Penn State University
Dario Salvucci, Drexel University
Harald Schaub
Mike Schoelles, Rensselaer Polytechnic Institute
Lael Schooler, Max Planck Institute for Human Development
Jonathan Shapiro, University of Manchester
Robert St. Amant, NC State University
Andrea Stocco, Carnegie Mellon University
Ron Sun, Rensselaer Polytechnic Institute
Niels Taatgen, Carnegie Mellon University
Rustam Tagiew, Technical University, Frieberg
Greg Trafton, U.S. Naval Research Lab
Hedderick van Rijn, University of Groningen
Shravan Vasishth, University of Potsdam
Richard M. Young, University College London
Travis Seymour, UC Santa Cruz

Thu 23rd July 2009: Tutorials =====

venue: rooms G34, G35, G6 Bridgeford Street Building, University of Manchester

Morning

A summary of Human-System Integration in the System Development Process

Frank Ritter, Half-day (0900-1215)

Morning and afternoon

Cognitive modeling with the neural engineering framework

Chris Eliasmith and Terry Stewart, Full-day (0900-1700)

Afternoon

EPAM/CHREST: Fifty years of simulating learning

Peter Lane and Fernand Gobet, Half-day (1345-1700)

Agent-based simulation: Social science simulation and beyond

Bruce Edmonds and Emma Norling, Half-day (1345-1700)

Friday 24th July 2009: DAY 1 =====

venue: Whitworth Hall, University of Manchester

8am - 8:30am registration in Whitworth Hall

8:30am - 9am opening

9am - 10am invited talk

Nick Chater UCL

10am - 10:40am session 1

A model of probability matching in a two-choice task based on stochastic control of learning in neural cell-assemblies

Roman Belavkin, Christian Huyck

Human and optimal exploration and exploitation in bandit problems

Shunan Zhang, Michael Lee, Miles Munro

10:40am - 11am coffee

11am - 12:40pm session 2

Towards explaining the evolution of domain languages with cognitive simulation

David Reitter, Christian Lebiere

Comparing human and synthetic group behaviors: A model based on social psychology

Natalie Fridman, Gal A. Kaminka

Towards a new cognitive hourglass: Uniform implementation of cognitive architecture via factor graphs

Paul Rosenbloom

An embodied model of infant gaze-following

Greg Trafton, Anthony Harrison, Benjamin Fransen, Magdalena Bugajska

The persistent visual store as the locus of fixation memory in visual search tasks

David Kieras

12:40pm - 2pm lunch

2pm - 3:40pm session 3

Error and expectation in language learning: Why "mouses" is a curious incident in adult speech

Michael Ramscar, Melody Dye

Compound effect of probabilistic disambiguation and memory retrievals on sentence processing: Evidence from an eye-tracking corpus
Umesh Patil, Shravan Vasishth, Reinhold Kliegl

The locus of the Gratton effect in picture-word interference
Leendert Van Maanen, Hedderik Van Rijn

Fluctuations in alertness and sustained attention: predicting driver performance
Glenn Gunzelmann, L. Richard Moore, Dario D. Salvucci, Kevin A. Gluck

Selected Poster Talks: 5 minutes each (see *)

3:40pm - 4:10pm coffee

4pm - 6pm posters 1

* Extending the contention scheduling model of routine action selection: The Wisconsin card sorting task and frontal dysfunction (1)

Rick Cooper

* Caffeine's effect on appraisal and mental arithmetic performance: Can a cognitive modeling approach tell us more? (2)

Sue Kase, Frank E. Ritter, Michael Schoelles

* Modeling the confidence of predictions: A time based approach (3)

Uwe Drewitz, Manfred Thüring

* Milliseconds matter but so do learning and heuristics (4)

Bella Veksler

The influence of spreading activation on memory retrieval in sequential diagnostic reasoning (5)

Udo Böhm, Katja Mehlhorn

Learning on the fly: Computational modelling of an unsupervised online-learning effect (6)

Martin Rohrmeier

Memory in Clark's Nutcrackers: A cognitive model for corvids (7)

Elske van der Vaart, Rineke Verbrugge, Charlotte Hemelrijk

Distinguishing between intentional and unintentional action (8)

Elisheva Bonchek Dokow, Gal Kaminka, Carmel Domshlak

An instance-based learning model of stimulus response compatibility effects in mixed location-relevant and location-irrelevant tasks (9)

Varun Dutt, Motonori Yamaguchi, Cleotilde Gonzalez, Robert Proctor

Predicting interest: Another use for latent semantic analysis (10)

Thomas Connolly, Vladislav Veksler, Wayne Gray

Modeling the performance of children on the attentional network test (11)

Fehmida Hussain, Sharon Wood

Group behaviour of virtual patients in response to therapeutic intervention in agent-based model of dementia management (12)

Victor Vickland, Henry Brodaty

Testing a quantitative model of time estimation in a load-switch scenario (13)

Nele Pape, Leon Urbas

Biomimetic bayesian models of navigation: How are environment geometry-based and landmark-based strategies articulated in humans? (14)

Julien Diard, Panagiota Panagiotaki, Alain Berthoz

Using information flow for modelling mathematical metaphors (15)

Markus Guhe, Alan Smaill, Alison Pease

Reading aloud multisyllabic words: A single-route connectionist model for Greek (16)

Konstantinos Outos, Athanassios Protopapas

Un-learning Un-prefixation errors (17)

Ben Ambridge, Daniel Freudenthal, Julian M Pine, Rebecca Mills, Victoria Clark, Caroline F Rowland

Bayesian model comparison and distinguishability (18)

Julien Diard

The drunken mice (19)

Julia Hagg, Dietrich Dörner

“Lateral inhibition” in a fully distribution connectionist architecture (20)

Simon Levy, Ross Gayler

Second Life as a simulation environment: Rich, high-fidelity world, minus the hassles (21)

Vladislav D. Veksler

4pm poster abstracts 1

Perceptual control theory as a framework for modelling living systems (22)

Warren Mansell

On modelling typical general human behavior in games (23)

Rustam Tagiev

Visualizing egocentric path descriptions: A computational model (24)

Don Lyon, Glenn Gunzelmann

Modeling for personnel assessment

Harald Schaub

The need of an interdisciplinary approach based on computational modelling in the study of categorization (25)

Francesco Gagliardi

A comparison of decision-making models for determining file importance (26)

K. C. Wong

A computational model of preverbal infant word learning (27)

Guillaume Aimetti

Reimplementing a diagrammatic reasoning model in Herbal (28)

Maik Friedrich, Frank E. Ritter

Dual-task strategy adaptation: Do we only interleave at chunk boundaries? (29)

Christian Janssen, Duncan Brumby

Capturing and modeling human cognition for context-aware software (30)

Lin Mei, Steve Easterbrook

"Cognitive plausibility" in cognitive modeling, artificial intelligence, and social simulation (31)

William Kennedy

MindModeling@Home . . . and anywhere else you have idle processors (32)

Jack Harris, Kevin Gluck, Thomas Mielke, L. Richard Moore, Jr.

Incremental processing and resource usage (33)

Deryle Lonsdale, Jeremiah McGhee, Ross Hendrickson, Carl Christensen

Clustering and traversals in concept association networks (34)

Arun R, Suresh Venkatasubramanian, Veni Madhavan C E

Multiple methods of modeling and detecting perceptual and cognitive configural (35)

Tamaryn Menneer, Michael Wenger, Leslie Blaha

7pm - 11pm conference dinner: Manchester Museum, The University of Manchester.

Saturday 25th July 2009: DAY 2 =====

9am - 10am invited talk

Lael Schooler Max Planck Institute for Human Development

10am - 10.40am session 4

Optimizing memory retention with cognitive models

Robert Lindsey, Michael Mozer, Nicholas Cepeda, Harold Pashler

A biologically realistic cleanup memory: Autoassociation in spiking neurons

Terrence Stewart, Yichuan Tang, Chris Eliasmith

10:40am - 11am coffee

11am - 12:40pm symposium

Rational explanations

Andrew Howes, John Anderson, Nick Chater, Lael Schooler, Richard L. Lewis, Henry Brighton

12:40pm - 2pm lunch & business meeting

2pm - 3:40pm session 5

Why EPIC was wrong about motor feature programming

David Kieras

How direct is perception of affordances? A computational investigation of grasping affordances

Giovanni Tessitore, Marta Borriello, Roberto Prevete, Guglielmo Tamburrini

Learning to use episodic memory

Nicholas Gorski, John Laird

Passing the test: Improving learning gains by balancing spacing and testing effects

Hedderik van Rijn, Leendert van Maanen, Marnix van Woudenberg

Selected Poster Talks: 5 minutes each (see *)

3:40pm - 4pm coffee

4pm - 5pm symposium

Predicting cognitive performance in open-ended dynamic tasks a modeling comparison challenge

Christian Lebiere, Coty Gonzalez, Varun Dutt, Walter Warwick

5pm - 7pm posters 2

- * Two routes to cognitive flexibility: Learning and response conflict (36)
Michael Ramscar, Melody Dye, Jessica Witten, Joseph Klein

- * Is the linear ballistic accumulator model really the simplest model of choice response times: A Bayesian model complexity analysis (37)
Christopher Donkin, Andrew Heathcote, Scott Brown

- * Using heuristic models to understand human and optimal decision-making on bandit problems (38)
Michael Lee, Shunan Zhang, Miles Munro, Mark Steyvers

- Comparison of instance and strategy models in ACT-R (39)
Cleotilde Gonzalez, Varun Dutt, Alice Healy, Michael Young, Lyle Bourne

- A computational model for behavioural monitoring and cognitive analysis using cognitive models (40)
Alexei Sharpanskykh, Jan Treur

- Gaze-following and awareness of visual perspective in chimpanzees (41)
Anthony Harrison, J. Gregory Trafton

- First steps towards a social comparison model of crowds (42)
Natalie Fridman, Gal Kaminka, Meytal Traub

- Computational models of human document keyword selection (43)
Michael Stipicevic, Vladislav Veksler, Wayne Gray

- Multiple object manipulation: Is structural modularity necessary? A study of the MOSAIC and CARMA models (44)
Stéphane Lallée, Julien Diard, Stéphane Rousset

- A topic model for movie choices and ratings (44)
Timothy Rubin, Mark Steyvers

- Large declarative memories in ACT-R (45)
Scott Douglass, Jerry Ball, Stuart Rodgers

- What's in an error? A detailed look at SRNs processing relative clauses (46)
Lars Konieczny, Daniel Müller, Nicolas Ruh

- Modelling the dynamics of cognitive depressogenic thought formation (47)
Azizi Ab Aziz

- The feature-label-order effect in symbolic learning (48)
Michael Ramscar, Daniel Yarlett, Melody Dye, Nal Kalchbrenner

Validation of an agent model for human work pressure (49)

Fiemke Both, Mark Hoogendoorn, Waqar Jaffry, Rianne van Lambalgen, Rogier Oorburg, Alexei Sharpanskykh, Jan Treur, Michael de Vos

Computational and explanatory power of cognitive architectures: The case of ACT-R (50)

Holger Schultheis

Processing grammatical and ungrammatical center embeddings in English and German: A computational model (51)

Felix Engelmann, Shravan Vasishth

An account of model inspiration, integration, and sub-task validation (52)

Christopher Myers

Mathematical modeling for performance prediction: Balancing plausibility with form and function using formal comparison techniques (53)

Tiffany Jastrzembski, Kevin Gluck

Applying Occam's razor to paper (and rock and scissors, too): Why simpler models are sometimes better (54)

Antonio Napoli, Danilo Fum

A decision making model based on Damasio's somatic marker hypothesis (55)

Mark Hoogendoorn, Robbert-Jan Merk, Jan Treur

Checking chess checks with chunks: A model of simple check detection (56)

Richard Smith, Fernand Gobet, Peter Lane

Flexible spatial language behaviors: Developing a neural dynamic theoretical framework (57)

John Lipinski, Yulia Sandamirskaya, Gregor Schöner

A neural model for adaptive emotion reading based on mirror neurons and Hebbian learning (58)

Tibor Bosse, Zulfiqar A. Memon, Jan Treur

Towards a neural network model of the visual short-term memory (59)

Anders Petersen, Søren Kyllingsbæk, Søren Kyllingsbæk, Lars Kai Hansen

5pm - 7pm poster abstracts 2

High-level ACT-R modeling based on SGT task models (60)

Marcus Heinath

Do the details matter? Comparing performance forecasts from two computational theories of fatigue (61)

Kevin Gluck, Glenn Gunzelmann, Michael Krusmark

A cognitive architecture for the perceptual symbol system (62)

Weiyu Wang

Boundaries of modeling human multitasking (63)

Juergen Kiefer, Robert Lischke

Unifying syntactic theory and sentence processing difficulty through a connectionist minimalist parser (64)

Sabrina Gerth, Peter beim Graben

A comparison of the performance of humans and computational models in the classification of facial expression (65)

Aruna Shenoy, Sue Anthony, Ray Frank, Neil Davey

An extension of Elman network (66)

Shin-ichi Asakawa

A holographic model of frequency and interference: Rethinking the problem size effect (67)

Matthew Rutledge-Taylor, Aryn Pyke, Robert West

A Preliminary ACT-R Compiler in Herbal (68)

Jaehyon Paik, Jong Kim, Frank E. Ritter

IDA, A new tool for creating operator models (69)

JC LeMentec

Mathematical modeling of human brain behavior as an adaptive complex system (70)

Maryam Esmaeili

Perceptual control theory model of the "Beads in the jar" task (71)

Tristan Browne, Warren Mansell, Wael El-Deredy

Sunday 26th July 2009: DAY 3 =====

9am - 10am invited talk

Dario Salvucci Drexel University

10am - 10:40am session 6

Testing fMRI predictions of a dual-task interference model

Jelmer Borst, Niels Taatgen, Hedderik Van Rijn, Andrea Stocco, Jon Fincham

A memory for goals model of sequence errors

Greg Trafton, Erik Altmann, Raj Ratwani

10:40am - 11am coffee

11am - 12:40am session 7

Spiking neurons and central executive control: The origin of the 50-millisecond cognitive cycle

Terrence Stewart, Chris Eliasmith

Adaptive mesh refinement for efficient exploration of cognitive architectures and cognitive models

Brad Best, Nathan Gerhart, Caitlin Furjanic, Jon Fincham, Kevin Gluck, Glenn Gunzelmann, Mike Krusmark

A computational model of three non-word repetition tests

Gary Jones

Multi-associative memory in fLIF cell assemblies

Christian Huyck, Kailash Nadh

The wisdom of crowds in rank ordering problems

Brent Miller, Pernille Hemmer, Mark Steyvers, Michael D. Lee

12:40pm - 2pm lunch

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CLOSE

VISITING THE CITY CENTRE

The University of Manchester is situated to the southeast of Manchester city centre. You can walk to the centre in about 15 minutes or take one of the many buses that run along Oxford Road / Street. Get off the bus on Portland Street, Whitworth Street, or Peter Street. Once you are in the city centre there are free buses (see map).

COFFEE

We recommend the following coffee shops. All of which are within 5 minutes of Whitworth Hall:

- * Cafe Muse, Manchester Museum, Oxford Road (1 minute to the north of Whitworth Hall and on the same side of Oxford Road).
- * Blackwell's coffee shop (in the book store), Oxford Road (under the bridge 3 minutes to the north of Whitworth Hall).
- * Kro Bar (2 minutes to the south on the opposite side of Oxford Road).

LUNCH

- * Walk to:
 - * Cafe Muse (1 minute north). Sandwiches and coffee.
 - * Christie's Bistro (Friday only. In the same building as Whitworth Hall). Soup and sandwiches.
 - * Blackwell's (5 minute north under the bridge to the north on Oxford Road). Quiche and salad.
 - * Tai Pan (Upper Brook St., 5 minutes to the north). Authentic chinese.
 - * Eight Day Cafe, Vegetarian Restaurant (10 minutes to the north on Oxford Road). Excellent, even if you are not a vegetarian.
 - * Red Chilli (8 minutes to the southeast). Chinese food.
 - * Kro (10 minute north up Oxford Road, just past the fly-over). Danish.
 - * The Deaf Institute (5 min north to Grosvenor Street). burger, chips and beer.
 - * Sandbar (5 min north on Grosvenor Street). Burger, chips and beer.
 - * Umami (5 min north on Oxford Road). Asian food.
 - * Muso Muso (5 min south on Oxford Road). Chinese
 - * Cornerhouse (15 minute north on Oxford Road).
- * Take a taxi to Chinatown, George Street, Manchester.
- * Take a taxi to Curry Mile, Rusholme, Manchester.
- * Take a taxi to Manchester City Centre
 - ROOM restaurant (81 King Street, Manchester 0161 839 2005)
 - El Rincon restaurant (244 Deansgate, Manchester 0161 839 2005)
 - Tai Wu (44 Oxford Street Manchester 0871 811 4927)

DINNER or LUNCH

- * Take a taxi to Chinatown, George Street, Manchester.
- * Take a taxi to Curry Mile, Rusholme, Manchester.
- * Take a taxi to Manchester City Centre
 - ROOM restaurant (81 King Street, Manchester 0161 839 2005)
 - El Rincon restaurant (244 Deansgate, Manchester 0161 839 2005)
 - Tai Wu (44 Oxford Street Manchester 0871 811 4927)
- * walk to

* EastZEast (Princess Street, must be booked) 0161 244 5353.

PLACES TO VISIT

- * Museum of Science and Industry in Manchester (see one of the first electronic computers; city centre).
- * Manchester Art Gallery (city centre).
- * Manchester Museum (University of Manchester). Venue for the conference meal.
- * The Whitworth Art Gallery (The University of Manchester's art gallery. 5 minute south).
- * Imperial War Museum North (Salford Quays). One of best buildings in the UK. Designed by Daniel Libeskind.
- * The Lowry (Salford Quays). Paintings by the Salford artist.

TAXI CABS

0161 275 9339
0161 272 8222
0161 236 8033
0161 237 3383
0161 227 1888
0161 228 1551
0161 236 0909

DELEGATES

Adrian Banks	Dean Petters
Andrew Howes	Deryle Lonsdale
Alexei Sharpanskykh	Dimitrios Pinotsis
Anders Petersen	Don Lyon
Andrew Wade	Duncan Brumby
Angel Iglesias	Eileen Simeone
Anthony Harrison	Elisheva Bonche
Antonio Napoli	Emily Connally
Arun Rajkumar	Emrah Akin Sisbot
Aruna Shenoy	Fehmida Hussain
Azizi Ab Aziz	Felix Engelmann
Barrett Flake	Francesco Gagliardi
Brent Miller	Frank Ritter
Brian Ten Eyck	Gary Jones
Chris Donkin	Glenn Gunzelmann
Christian Huyck	Greg Trafton
Christian Janssen	Guillaume Aimetti
Christian Lebiere	Hedderik Van Rijn
Christopher Myers	Holger Schultheis
Daniel Freudenthal	Hyungwoon Koo
Dario Salvucci	Jelmer Borst
David Cameron	Joanne Hinds
David Kieras	John Anderson
David Pautler	John Lipinski
David Peebles	Kailash Nadh
David Reitter	Katja Mehlhorn

Kevin Gluck
Kiran Kalidindi
Konstantinos Outo
Lee Averell
Leendert Van Maan
Lin Mei
Marc Halbruegge
Markus Guhe
Martin Rohrmeier
Martin Simmons
Melanie Friedrich
Michael Schoelles
Michael Wenger
Mike Dameron
Elsbeth Elaine Van Der Vaar
Nadia Ali
Natalie Fridman
Nele Pape
Nicholas Gorski
Niels Taatgen
Paul Rosenbloom
Paula Monahan
Danilo Fum
Dietrich Dorner
Michael Byrne
Wayne Gray
K. C. Wong
Raj Ratwani
Raquel Ros
Richard L. Lewis

Richard M Young
Richard Smith
Rick Cooper
Robert Lindsey
Robert West
Roberto Prevete
Roeland Hancock
Roman Belavkin
Rustam Tagiew
Sabrina Gerth
Scott Douglass
Sharon Wood
Shin-ichi Asakawa
Shunan Zhang
Simon Levy
Stefan Schaffer
Stephane Lallee
Swati Gupta
Syed Waqar Ul Qounain Jaffer
Tamaryn Menneer
Terry Stewart
Tiffany Jastrzembski
Udo Boehm
Umesh Patil
Uwe Drewitz
Victor Vickland
Walter Warwick
Warren Mansell
Zulfiqar Ali Memon

ICCM 2009

