Curriculum vitæ

Vincent Chi Kwan Cheung

77 Massachusetts Avenue, Room 46-6179
Cambridge, MA 02139 USA
Tel: 1-617-253-0772
Fax: 1-617-258-5342

E-mail: ckcheung@mit.edu
Website: http://web.mit.edu/ckcheung/www

Education

2000–2007 **Ph. D.**, Neuroscience and Biomedical Engineering
Division of Health Sciences and Technology (Medical Engineering and Medical Physics Division), Harvard Medical School and Massachusetts Institute of Technology, Cambridge, MA, USA
Thesis supervisor: Emilio Bizzi, Institute Professor, MIT

1996–2000 **B. Sc.**, Combined Honours in Mathematics, and Pharmacology & Therapeutics, with minor in Arts (Music)
University of British Columbia, Vancouver, BC, Canada

1997 **L. R. S. M.** (Licentiate of the Royal Schools of Music), Piano Performance
Associated Board of the Royal Schools of Music, London, UK

Research Positions Held

2/07–present Postdoctoral Fellow
McGovern Institute for Brain Research, Massachusetts Institute of Technology, Cambridge, MA
Supervisors: Ki Ann Goosens, Assistant Professor of Neuroscience, MIT
Emilio Bizzi, Institute Professor, MIT

9/01–2006 Graduate Research Assistant
Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology, Cambridge, MA
Supervisor: Emilio Bizzi

6/01–8/01 Summer Research Assistant
Neuroscience Statistics Research Laboratory, Department of Anesthesia and Critical Care, Massachusetts General Hospital, Boston, MA
Supervisor: Emery N. Brown

6/99–8/99 Summer Research Assistant
Department of Pharmacology and Therapeutics, University of British Columbia, Vancouver, BC
Supervisors: Ernest Puil, and Robert Miura

Honours, Fellowships, Awards

2001/04/06 Fellowship in Medical Engineering and Medical Physics (MEMP) for HST students
2003–2004 Schoemaker Foundation Fellowship (McGovern Institute for Brain Research, MIT)
2002–2003 Chyn Duog Shiah Memorial Fellowship (MIT Graduate Students Office)
2000–2001 MIT Presidential Fellowship
2000 UBC Wesbrook Scholar Award
1/2000 Student Presentation Award, winter meeting of the Canadian Physiological Society
4/1999 UBC Faculty of Medicine Summer Research Fellowship
1998/99 UBC Science Scholar Award for undergraduates
1998 The UBC Maureta Evelyn McDonald Memorial Scholarship
1997/98 The UBC J. Fred Muir Memorial Scholarship in Science
1997 The UBC Joel Harold Marcoe Memorial Scholarship

1997	The UBC Summer Session Student Scholarship
1996	The UBC Norman MacKenzie Alumni Entrance Scholarship
1996–1999	UBC Outstanding Student Initiative Scholarship
1996	Canadian Governor General Academic Medal (Bronze)

Professional Organizations

2006–pres.	International Society for the History of the Neurosciences, student member
2006–pres.	American Association for the Advancement of Science, member
2006–pres.	The Neural Control of Movement Society, student member
10/04–pres.	Society for Neuroscience (USA), member
5/04–5/06	IEEE Engineering in Medicine and Biology Society, student member
2000	Canadian Physiological Society, student member

Professional Activities

2007	IEEE Engineering in Medicine and Biology Society Conference, invited reviewer

Presentations and Invited Talks

Harvard-MIT Division of Health Sciences and Technology research forum: 2002, 2003
IEEE Engineering in Medicine and Biology Society annual international conference: 2005
McGovern Institute for Brain Research annual retreat meetings: 2003, 2004, 2006
Society for Neuroscience annual meetings: 2003, 2005
Society for the Neural Control of Movement annual meetings: 2006, 2007

12/18/07	Invited Talk: Motor control seminar series (Host: Prof. Bence Ölveczky) Division of Biological and Biomedical Sciences, Harvard University, Cambridge, MA
5/16/06	Invited Talk: Computational Motor Control Seminar (Host: Prof. Michael Black) Department of Computer Science, Brown University, Providence, RI
11/15/04	Neuroscience Seminar Series: Brain Lunch Department of Brain and Cognitive Sciences, MIT, Cambridge, MA
6/29/04	MIT Health Sciences Research Presentations Mount Auburn Hospital, Harvard Medical School, Cambridge, MA
8/22/03	Students' Research Presentation for Students in Neuroinformatics Marine Biological Laboratory, Woods Hole, MA
1/2000	Research Seminar Canadian Physiological Society Winter Meeting, Chateau Lake Louise, Alberta, Canada
1/2000	Student Poster Presentation UBC Health Science Research Forum, UBC, Vancouver, BC, Canada

Teaching Positions and Awards

2/06	Teaching Award: The Angus MacDonald Award for Excellence in Undergraduate Teaching Department of Brain and Cognitive Sciences, MIT

9/05; 10/07 Guest Lecturer
Undergraduate course in the neuroscience of learning and memory (MIT course 9.03; dir. Suzanne Corkin)

9-12/05 Teaching Assistant
Undergraduate course in clinical neuroscience (MIT course 9.22/HST.422J; dir. Thomas Byrne)

2-5/05 Teaching Assistant
Undergraduate course in evolutionary neuroscience and neuroanatomy (MIT course 9.14; dir. Gerald Schneider)

2005–07 Guest Prosector
Introductory course in neuroanatomy (MIT course 9.97; dir. Rutledge Ellis-Behnke); undergraduate course in neuroanatomy and development (MIT course 9.14; dir. Gerald Schneider); introductory undergraduate course in neuroscience (MIT course 9.01; dir. Sebastian Seung)

2-5/02 Teaching Assistant
Undergraduate course in neuroanatomy and development (MIT course 9.14; dir. Gerald Schneider)

Clinical Training

2001–2003 M. D. courses in functional human anatomy, general pathology, medical genetics, renal pathophysiology, cardiovascular pathophysiology, pulmonary pathophysiology
Harvard Medical School (HST Society), Boston, MA

1-7/2004 Clinical Internship in Internal Medicine (10 weeks; supervisor: Valerie Pronio-Stelluto)
Department of Medicine and Medical Education, Mount Auburn Hospital, Harvard Medical School

7/04 Clinical Internship in Geriatric Psychiatry (2 weeks; supervisor: Joseph D'Afflitti)
Mount Auburn Hospital, Harvard Medical School

7/04 Clinical Internship in Neurology (2 weeks; supervisor: Linda Buchwald)
Mount Auburn Hospital, Harvard Medical School

Other Training

8/03 Neuroinformatics course (dir. Emery N. Brown and Partha Mitra)
Marine Biological Laboratory, Woods Hole, MA

Publications

Journal and Conference Papers

1. Cheung VCK, d'Avella A, Tresch MC, Bizzi E (2005) Central and sensory contributions to the activation and organization of muscle synergies during natural motor behaviors. *Journal of Neuroscience* **25**(27): 6419-6434.

2. Cheung VCK, Tresch MC (2005) Non-negative matrix factorization algorithms modeling noise distributions within the exponential family. *Proceedings of the 27th IEEE Engineering in Medicine and Biology Society Annual International Conference* (September 1-4, 2005, Shanghai, China), 4990-4993.

3. Tresch MC, Cheung VCK, d'Avella A (2006) Matrix factorization algorithms for the identification of muscle synergies: evaluation on simulated and experimental data sets. *Journal of Neurophysiology* **95**: 2199-2212.

4. Bizzi E, Cheung VCK, d'Avella A, Saltiel P, Tresch MC (2008) Combining modules for movement. *Brain Research Reviews* **57**: 125-133.

5. Cheung VCK, d'Avella A, Bizzi E. Short-term motor adaptation via modulated activations of muscle synergies during natural behaviors. Submitted.

Conference Abstracts

1. Cheung VCK, Puil E (1999) Rhodium (Rh^{3+}) actions on medial geniculate body neurons. *Physiology Canada* **30**(3):155.

2. Cheung VCK, d'Avella A, Bizzi E (2002) Role of Sensory Feedback in a Motor System with Modular Organization. *HST Forum Abstracts* (Harvard-MIT Division of Health Sciences and Technology, Massachusetts Institute of Technology).

3. Cheung VCK, d'Avella A, Bizzi E (2003) Afferent Roles in a Motor System with Modular Organization. *HST Forum Abstracts* (Harvard-MIT Division of Health Sciences and Technology, Massachusetts Institute of Technology).

4. Cheung VCK, d'Avella A, Tresch MC, Bizzi E (2003) Afferent roles in modulating activation of muscle synergies during natural motor behaviors. *Society for Neuroscience Abstracts* **493.6**.

5. Tresch MC, Cheung VCK, d'Avella A (2004) Comparisons between synergy extraction methods. *Society for Neuroscience Abstracts* **69.9**.

6. Cheung VCK, Bizzi E, Tresch MC (2005) Electromyographical data analysis using non-negative factorization algorithms modeling noise distributions within the exponential family. *Society for Neuroscience Abstracts* **55.12**.

7. Cheung VCK, d'Avella A, Bizzi E (2006) Motor adaptation through modulation and reorganization of muscle synergies during natural motor behaviors. *Society for the Neural Control of Movement Annual Conference Abstracts* **11:** E-01.

8. Stamoulis C, Cheung VCK, Roh J, Bizzi E (2006) Muscle coherence as a control parameter in the motor system. *Society for Neuroscience Abstracts* **448.2**.

9. Cheung VCK, Bizzi E (2007) Sensory modulation of muscle synergies for motor adaptation during natural behaviors: evidence from inertial and elastic loading experiments. *Society for the Neural Control of Movement Annual Conference Abstracts* **12**: K-03.

10. Roh J, Cheung VCK, Bizzi E (2007) Construction of natural motor behaviors through combination of muscle synergies localized within the spinal cord. *Society for the Neural Control of Movement Annual Conference Abstracts* **12**: K-09.

11. Roh J, Cheung VCK, Bizzi E (2007) Construction of natural motor behaviors through combination of muscle synergies localized within the spinal cord. *Society for Neuroscience Abstracts* **926.10**: RR24.

12. Stamoulis C, Cheung VCK, Roh J, Bizzi E (2007) Multi-resolution muscle coherence estimation during natural and reflexive behaviors. *Society for the Neural Control of Movement Annual Conference Abstracts* **12**: P-04.

Personal

Citizenship:	Canadian
Birth date & place:	10/28/1978; Hong Kong, China
Marital status:	Single
Languages:	English, Cantonese (native), Mandarin, some German and French

As of January 19, 2008.