

## Curriculum vitae

### Personal details

Title: Dr. phil. L. S. (Lorenza) Colzato  
Male/female: Female  
Date and place of birth: Bolzano, 20 September 1974  
Nationality: Italian  
Status: Married (to Bernhard Hommel), no children  
Languages: Italian (native speaker), German (highly fluent), English and Dutch (fluent)

### Master's ('doctoraal')

University/College of Higher Education: University of Padova (Italy)  
Date (dd/mm/yy): 23-02-1999  
Main subject: MA in Clinical Psychology & MA in Cognitive Psychology

### Doctorate

University/College of Higher Education:  
Starting date (dd/mm/yy): 01-05-2000  
Completion date (dd/mm/yy): 14-06-2005  
Supervisor ('Promotor'): Prof. Dr. A.H.C. (Lex ) v.d. Heijden  
Title of thesis: Commonalities of feature integration processing in and across perception and action planning

### Post Doctoraal Course:

Institute: Master program in Humanistic Psychology  
Istituto dell'Approccio Centrato sulla  
Persona  
p.zza V. Emanuele II 99, 00185, Roma,  
Italy  
Date: 15-11-2003  
Supervisor: Dr. Alberto Zucconi  
Title: Recognized Client-Centered  
Psychotherapist.

### Work experience since graduating

Guest Researcher, 03-1999 / 08-1999, 1 fte; fixed-term  
Max Planck Institute for Psychological Research, Munich, Germany

Clinical Psychologist, 09-1999 / 04-2000, 1 fte; fixed-term  
"IRIS Caritas", centre for HIV prevention and psychological counselling for terminal AIDS patients, Bolzano, Italy

PhD. Student (AiO), 05-2000 / 04-2004, 1 fte; fixed-term  
Cognitive Psychology Unit, Leiden University

Postdoctoral Fellow, 05-2004 / 08-2005, 1 fte; fixed-term  
Cognitive Psychology Unit, Leiden University

Assistant Professor (UD), since 09-2005, 1 fte; fixed-term  
Cognitive Psychology Unit, Leiden University

### **Grants**

2008 NWO-VENI-451-08-002 grant (€200,000): Integrative Neuromodulation of Cognitive Control.

### **Brief summary of research over last five years**

In broad outline my field of research concerns factors (as for example drugs, stress, emotions, motivations, intelligence, working memory capacity, bilingualism, dopaminergic baseline level) that are known to predict, impair or enhance individual cognitive performance. Combining a cognitive neuroscience perspective with a focus on individual differences, I study, by means of a wide range of computerized tasks, how cognitive control processes and their neurobiological mechanisms are affected by these factors. Central themes for me are executive control, which refers to a general control mechanism that regulates the dynamics of human cognition, as well as response inhibition, or the ability to interrupt ongoing planned actions. During my post-doc I specialized in various psychophysiological tools, such as electroencephalography (EEG) and functional magnetic resonance imaging (fMRI) to link the afore-mentioned behavioural measures with brain activity.

In the last two years I focused my interest on the short-term effect of emotion/motivation and long-term effect of moderate intake of recreational drugs as cannabis, MDMA (ecstasy) and cocaine on executive function.

Current projects focus on the genetic underpinnings of cognitive control.

### **International activities**

- International research collaboration with the following colleagues:
  - Prof. Maria Teresa Bajo, Universidad de Granada, Spain
  - Dr. Sabrina Fagioli, Università La Sapienza di Roma, Italy
  - Prof. Luis Fuentes, Universidad de Murcia, Spain
  - Dr. Hugh Garavan, Trinity College Dublin, Ireland
  - Dr. Klaus Kessler, University of Glasgow, UK
  - Dr. Andrea Kiesel, University of Würzburg, Germany
  - Dr. Mariette Huizinga, University of Amsterdam, The Netherlands
  - Prof. Nachshon Meiran, Ben-Gurion University of the Negev, Beer-Sheva, Israel.
  - Dr. Jay Pratt, Toronto University, Canada
  - Dr. Daniela Paolieri, Università degli Studi di Trento, Italy
  - Dr. Antonino Raffone, Università La Sapienza di Roma, Italy
  - Dr. Wery van den Wildenberg, University of Amsterdam, The Netherlands
  - Dr. Ana Vivas, City Liberal Studies: Affiliated Institution of the University of Sheffield, Thessaloniki, Greece
- During my Client-Centered Psychotherapist training in Rome, I have counselled terminal AIDS patients and their relatives.
- Co-organizer of an international expert meeting "Feature Integration meeting" (August, 2002), Erice, Italy (funded by Volkswagen Stiftung).
- Co-organizer of an international expert symposium "Imag(in)ing the Buddhist

- Brain" (March, 2009), Leiden, The Netherlands (funded by Leiden Institute of Brain and Cognition).
- In June 2003 I have visited for a month Prof. Dr. Asher Cohen, The Hebrew University of Jerusalem, Jerusalem, Israel to work on the effect of caffeine on attention
  - I have participated in and gave lectures at several international conferences and workshops (see publication list).
  - Memberships of:
    - Cognitive Neuroscience Society, USA
    - European Society for Cognitive Psychology (ESCoP)
    - Federation of European Neuroscience Societies (FENS)
    - Psychonomic Society, USA

### **Other academic activities**

- I have received a training in EEG technique and analysis from dr. Guido Band (UL) and I carried out several EEG experiments
- I have received a LIBC-organized training in fMRI technique and analysis by dr. Wouter Theeuwisse (LUMC) and Serge Roombouts (LIBC), I am LUMC-certified fMRI researcher and I carried out three fMRI experiments
- Coordination of Research Master Programme of Psychology Department
- Coordination of lab of Cognitive Psychology Unit (Supervision of four lab-assistants)
- Coordinator of Master Thesis and Internship professional master program of the Cognitive Psychology Unit, Leiden University
- Coordinator of bachelor 1st year: Computerpracticum Cognitieve en Biopsychologie
- Coordinator of Master 4th year: (Advanced) Experimentation I and Designing empirical study
- Bachelor 3rd year practical class: (Honours) Bachelor project
- Teaching experience in Neuromodulation of Cognition
- Teaching experience in programming of on-line experiments (ERTS) and in supervising student groups as well as in individual Master and bachelor students
- Ad-hoc referee for several international professional journals, including Neuropsychopharmacology, Neuropsychologia, Brain & Cognition, Journal of Experimental Psychology: Learning, Memory, and Cognition
- Member of NVP, the Dutch Society for Psychonomic

## List of publications

### 5. Publications:

#### - International (refereed) journals

Colzato, L. S., & Hommel, B. (2009). Recreational use of cocaine eliminates Inhibition of Return. *Neuropsychology*, *23*, 125-129.

Colzato, L. S., Slagter, H. A., van den Wildenberg, W., & Hommel, B. (2009). Closing one's eyes to reality: Evidence for a dopaminergic basis of psychoticism from spontaneous eye blink rates. *Personality and Individual Differences*, *46*, 377-380.

Colzato, L. S., van den Wildenberg W., & Hommel, B. (2008). Losing the big picture: How religion controls visual attention. *PLoS ONE* *3*(11): e3679. doi:10.1371/journal.pone.0003679

Colzato, L. S., Bajo, M. T., van den Wildenberg, W., Paolieri, D., Nieuwenhuis, S. T., La Heij, W., & Hommel, B. (2008). How does bilingualism improve executive control? A comparison of active and reactive inhibition mechanisms. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *34*, 302-312.

Colzato, L. S., & Hommel, B. (2008). Cannabis, cocaine, and visuomotor integration: Evidence for a role of dopamine D1 receptors in binding perception and action. *Neuropsychologia*, *46*, 1570-1575.

Colzato, L. S., Kool, W., & Hommel, B. (2008). Stress modulation of visuomotor binding. *Neuropsychologia*, *46*, 1542-1548.

Colzato, L. S., Slagter, H. A., Spapé, M. A., & Hommel, B. (2008). Blinks of the eye predict blinks of the mind. *Neuropsychologia*, *46*, 3179-3183.

Colzato, L. S., Spapé, M., Pannebakker, M., & Hommel, B. (2007). Working memory and the Attentional Blink: Blink size is predicted by individual differences in operation span. *Psychonomic Bulletin & Review*, *14* (6), 1051-1057.

Colzato, L. S., van den Wildenberg W., & Hommel, B. (2007). Impaired inhibitory control in recreational users of cocaine. *PLoS ONE*, <http://www.plosone.org/doi/pone.0001143>.

Colzato, L. S., van Wouwe, N. C., & Hommel, B. (2007). Spontaneous Eye-Blink Rate predicts the strength of visuomotor binding. *Neuropsychologia*, *45*, 2387-2392.

Colzato, L. S., van Wouwe, N. C., & Hommel, B. (2007). Feature binding and affect: Emotional modulation of visuo-motor integration. *Neuropsychologia*, *45*, 440-446.

Colzato, L. S., Raffone, A., & Hommel, B. (2006). What do we learn from binding features? Evidence for multilevel feature integration. *Journal of Experimental Psychology: Human Perception and Performance*, 32, 705-716.

Colzato, L. S., van Wouwe, N. C., Lavender, T., & Hommel, B. (2006). Intelligence and cognitive flexibility: Fluid intelligence correlates with feature "unbinding" across perception and action. *Psychonomic Bulletin & Review*, 13(6), 1043-1048.

Colzato, L. S., Warrens, M., & Hommel, B. (2006). Priming and binding in and across perception and action: A correlational analysis of the internal structure of event files. *Quarterly Journal of Experimental Psychology. Part A*, 59, 1785-1804.

Colzato, L. S., Fagioli, S., Erasmus, V., & Hommel, B. (2005). Caffeine, but not nicotine enhances visual feature binding. *European Journal of Neuroscience*, 21, 591-595.

Colzato, L. S., Erasmus, V., & Hommel, B. (2004). Moderate alcohol consumption in humans impairs feature binding in visual perception but not across perception and action. *Neuroscience Letters*, 360, 103-105.

Hommel, B., & Colzato, L. S. (in press). When an object is more than a binding of its features: Evidence for two mechanisms of visual feature integration. *Visual Cognition*.

Hommel, B., Colzato, L. S., & van den Wildenberg, W. P. M. (in press). How social are task representations? *Psychological Science*.

Hommel, B., & Colzato, L. S. (2004). Visual attention and the temporal dynamics of feature integration. *Visual Cognition*, 11, 483-521.

Hommel, B., Pratt, J., Colzato, L., & Godijn, R. (2001). Symbolic control of visual attention. *Psychological Science*, 12, 360-365.

Keizer, A. W., Colzato, L. S., & Hommel, B. (2008). Integrating faces, houses, motion, and action: Spontaneous binding across ventral and dorsal processing streams. *Acta Psychologica*, 127, 177-185.

Keizer, A. W., Nieuwenhuis, S., Colzato, L. S., Theeuwisse, W., Rombouts, S. A. R. B., & Hommel, B. (2008). When moving faces activate the house area: an fMRI study of object file retrieval. *Behavioral and Brain Functions*, 4:50.

#### **- Other** Submitted

Colzato, L. S., Huizinga, M., & Hommel, B. (2009). Recreational use of cocaine impairs cognitive flexibility but not working memory.

Colzato, L. S., van den Wildenberg, W., & Hommel, B. (2009). Trees before the forest: Recreational use of cocaine is associated with decrease scope of

attention.

Colzato, L. S., van den Wildenberg W., & Hommel, B. (2009). When the eye is quicker than the hand: Evidence for the dopaminergic modulation of inhibitory action control.

Hommel, B., Colzato, L. S., van den Wildenberg W., & Cellini, C. (2009). The difficulty law of motivation: fMRI (noise) increases cognitive control.

#### Proceedings, Conference reports and Abstracts (selected list)

Colzato, L. S. (2009). Integrative neuromodulation of cognitive control. Talk will be presented at the *16th Escop meeting*, Krakow, Polen.

Colzato, L. S. (2009). Losing the big picture: how religion may control visual attention. Talk will be presented at the *16th Escop meeting*, Krakow, Polen.

Colzato, L. S. (2009). Cognitive impairments among recreational cocaine users. Invited talk will be presented at University of Dresden, Germany.

Colzato, L. S. (2009). Losing the big picture: how religion may control visual attention. Talk presented *TEAP*, Jena, Germany.

Colzato, L. S. (2008). Dopaminergic modulation of binding perception and action. Talk presented *Psychonomic Society Meeting*, Chicago, USA.

Colzato, L. S. (2008). Integrative neuromodulation of cognitive control: evidences from cocaine studies. Invited talk presented at Maastricht University, The Netherlands.

Colzato, L. S. (2008). Neuromodulation of cognitive control. Invited talk presented at University of Wuerzburg, Germany.

Colzato, L. S. (2008). Recreational use of cocaine and cognitive control. Invited talk presented at Science Café, Leiden, The Netherlands.

Colzato, L. S., van den Wildenberg W., & Hommel, B. (2007). Impaired inhibitory control in recreational users of cocaine. Poster presented at the *Psychonomic Society Meeting*, Long Beach, USA.

Colzato, L. S., & Hommel, B. (2007). Cannabis, cocaine, and visuomotor integration: Evidence for a role of dopamine D1 receptors in binding perception and action. Talk presented at the *15th Escop meeting*, Marseille, France.

Colzato, L. S., & Hommel, B. (2007). 3,4-methylenedioxymethamphetamine (MDMA or ecstasy) and cannabinoid use impairs updating of visuomotor binding. Poster presented at the Annual meeting of the *Cognitive Neuroscience Society (CNS)*, New York, USA.

Colzato, L. S., & van den Wildenberg W (2007). Impaired inhibitory control of behaviour in chronic cocaine users: preliminary results. Talk presented at the EPOS Workshop on Cognitive Control, Leiden, The Netherlands.

Colzato, L. S., Spapé, M., Pannebakker, M., & Hommel, B. (2006) Working memory and the Attentional Blink: Blink size is predicted by individual differences in operation span. Poster presented at the *Psychonomic Society Meeting*, Houston, USA.

Colzato, L. S., Bajo, M. T., van den Wildenberg W., Paolieri D., Nieuwenhuis S., La Heij, W., & Hommel, B. (2006). How does bilingualism improve executive control? A comparison of active and reactive inhibition mechanisms? Poster presented at the Workshop *Bilingual Sentence Processing: Functional and Neural Perspectives*, Rovereto, Italy.

Colzato, L. S., Raffone A., & Hommel B. (2005). What do we learn from binding features? Evidence for multilevel feature integration. Poster presented at the *Psychonomic Society Meeting*, Toronto, Canada.

Colzato, L. S., Raffone A., & Hommel B. (2005). What do we learn from binding features? Evidence for multilevel feature integration. Talk presented at the *14th Escop meeting*, Leiden, The Netherlands.

Colzato, L. S., van Wouwe, N. C., Lavender, T., & Hommel, B. (2005). High intelligence enhances "debinding" across perception and action. Poster presented at the *14th Escop meeting*, Leiden, The Netherlands.

Colzato, L. S., & Hommel B. (2004). Muscarinic cholinergic control of visual feature binding: evidence for a role of neurosynchronization in attention. Talk presented at the *Psychonomic Society Meeting*, Minneapolis, USA.

Colzato, L. S., Fagioli, S., Erasmus, V., Paolieri, D., & Hommel B. (2004). Evidence for muscarinic cholinergic control of visual feature integration. Talk presented at the International PhD workshop / expert meeting "*Unique and shared mechanisms of dual-task interference*", Leiden, The Netherlands.

Colzato, L. S., & Hommel, B. (2003). What do we learn from binding features? The relationship between episodic integration and long-term memory. Poster presented at the *13th Escop meeting*, Granada, Spain.

Colzato, L. S., & Hommel, B. (2003). What do we learn from binding features? Talk presented at the *2nd ENP meeting*, Doorwerth, The Netherlands.

Colzato, L. S., & Hommel, B. (2002). The time course of object- and event-file construction. Poster presented at the "*Feature Integration meeting*", Erice, Italy.

Colzato, L. S., & Hommel, B. (2001). The time course of object-file construction. Poster presented at the *12th Escop meeting*, Edinburgh, Scotland.