

SCIENTIFIC ISSUES AND AIMS OF DISCUSSION

The CONTACT PROJECT and CRIL are collaborating closely to build an integrated system for characterizing the motor processes of speech production by the simultaneous acquisition of data during articulation in many modalities: ultrasound, articulography, laryngography, and audiovisual recording. We seek to identify motoric and neural invariants that share a common structure during the development of perception and production for both speech and manipulation. The effectiveness of hypothesized invariants will be tested on an artificial learning system fed with the collected motoric data, which should autonomously develop its perceptual capabilities in speech recognition. This collaboration prompted us to organize an interdisciplinary workshop, creating an opportunity for dialogue between first class scientists from the disciplines of cognitive neuroscience, robotics and linguistics.

The hope is that in the future, research in the field of cognitive neuroscience will mature and converge to an integrated epistemological perspective, leading to the elaboration of a unified neural theory of language and motor control.



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Centro di Ricerca Interdisciplinare
sul Linguaggio
and
The CONTACT Project
“Learning and development
of Contextual Action”

PRESENT AN INTERNATIONAL WORKSHOP

Is a neural theory of
language possible?

Development of
unified representations
in natural and artificial
systems

SCIENTIFIC COMMITTEE

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UNIVERSITÀ DEL SALENTO

Facoltà di Lingue e Letterature Straniere
Dipartimento di Filologia, Linguistica e Letteratura



HOTEL PRESIDENT
LECCE, JUNE 28-30, 2007

programme

28 JUNE, THURSDAY

- 8:45 Registration
- 9:00 Greetings from the Rector Prof. Oronzo Limone
University of Salento
- 9:15 Welcoming and introduction:
Mirko Grimaldi - University of Salento
Giulio Sandini - University of Genova
- 9:30 Opening lecture
Luigi Rizzi - University of Siena
Linguistic computations in the mind/brain

Discussion
- SCT1** Unified representations for speech and action
Chair: Paul Fitzpatrick (University of Genova)
- 10:15 Speaker
Luciano Fadiga University of Ferrara
Action and language
- 11:00 **Coffee break**
- 11:30 *Discussants*
Jacques Mehler - SISSA Trieste
Andrea Calabrese - University of Connecticut

Discussion
- 13:00 **Lunch break**
- SCT2** The phonetic-phonological interface
Chair: Francisco Lacerda (University of Stockholm)
- 15:30 Speaker
Douglas Whalen - Haskins Laboratories - Connecticut
Gestures, features, and mirror neurons
- 16:15 **Coffee break**
- 16:30 Speaker
Marina Nespor - University of Ferrara / SISSA Trieste
Rhythm and language acquisition
- 17:15 *Discussants*
Andrew Nevins - Harvard University
Bert Vaux - University of Cambridge
Discussion

29 JUNE, FRIDAY

- SCT3** Natural and artificial structures of language and communication
Chair: Laila Craighero (University of Ferrara)
- 9:30 Speaker
Bruno Galantucci - Haskins Laboratories - Connecticut
The emergence of human communicative gestures
- 10:15 **Coffee Break**
- 10:45 *Speakers*
David Poeppel - University of Maryland
Dave Embick - University of Pennsylvania
Syntactic computation and neurobiology
- 11:30 *Discussants*
Alec Marantz - New York University
Andrea Moro - Università Vita-Salute San Raffaele, Milano

Discussion
- 13:00 **Lunch break**
- SCT4** Lexical competence and semantic processes
Chair: Giorgio Metta (University of Genova)
- 14:45 Speaker
Art Glenberg - University of Wisconsin
Premotor cortex, action control, and language
- 15:30 **Coffee break**
- 15:45 *Speakers*
Friedemann Pulvermüller - University of Cambridge
Max Garagnani - University of Cambridge
Towards a mechanistic theory of language grounded in perception-action circuits of the human brain
- 16:30 *Discussants*
Gennaro Chierchia - Harvard University
Stefano Cappa - Università Vita-Salute San Raffaele Milano

Discussion
- Tour of Gallipoli and Social Dinner by the sea in the Marechiaro Restaurant*

JUNE 30, SATURDAY

- SCT5** Unified representations in natural and artificial systems
Chair: José Santos-Victor (Instituto Superior Técnico, Portugal)
- 9:00 Joseph Perkell
Research Laboratory of Electronics at MIT
Movement goals and feedback and feedforward mechanisms in speech production

Discussion
- 9:45 Yiannis Aloimonos
Computer Vision Laboratory University of Maryland
HAL: Human Activity Language

Discussion
- 10:15 **Coffee break**
- 10:45 Jean-Luc Schwartz
Institut de la Communication Parlée, Grenoble
Morphogenesis of language units in a perceptuo-motor framework

Discussion
- 11:30 Roger Moore - University of Sheffield
Predictive Sensorimotor Control and Emulation (PRESENCE): Implications for Future Spoken Language Technology

Discussion
- 12:15 Frank Guenther
Boston University
Auditory, somatosensory, and motor interactions in speech production

Discussion
- Conclusion