Curriculum Vitae

Alessio Plebe

2023

Dipartimento di Scienze Cognitive, Psicologiche, Pedagogiche e Studi Culturali
University of Messina, Italy

Higher Education

- 2003: PhD in Philosophy of Language, University of Palermo.

- 1981: M.S. in Electronic Engineering, University of Rome.

Professional Positions

- 2021–present: Full Professor M-FIL/02, Department of Cognitive Science, University of Messina, Italy.

- 2015–2020: Associate Professor M-FIL/02, Department of Cognitive Science, University of Messina, Italy.

- 2005–2014: Associate Professor INF-01, Department of Cognitive Science, University of Messina, Italy.

- 2002–2005: Researcher ING/INF-05, Department of Cognitive Science, University of Messina, Italy.

- 2001–2002: Fellow Researcher (assegnista di ricerca), Department of Mathematics and Computer Science, University of Catania, Italy.

- 1990–2000: Senior Researcher, Department of Robotics and Artificial Intelligence, CRAM (Consorzio per la Ricerca in Agricoltura nel Mezzogiorno), Catania, Italy.

- 1982–1989: Researcher, Image Processing Group, AID (Agriculture Industrial Development) SpA Catania - Italy.

Areas of Specialization

- *Artificial Neural Networks* with particular emphasis on ANNs as models of higher cognitive functions, such as vision, language, and morality, including collaboration to neural simulator projects such as *Topographica* lead by University of Edinburgh.

- *Philosophy of Science* with particular emphasis on the philosophy of cognitive science, neuroscience, and artificial intelligence.

- *Philosophy of Language* with particular emphasis on the semantics of visual objects, the emergence of language in the brain, issues in linguistic relativism, the semantics of neural language models.

Academic Appointments

- 2002–present Member of the Doctorate School in Cognitive Science, University of Messina.

- 2021–present Coordinator of the M.S. Degree in Communication and Education Science (L19–L20), University of Messina.

- 2015–2018 Coordinator of the M.S. Degree in Cognitive Science and Communication (LM55–LM92), University of Messina.

- 2013–2017 University of Messina Rector's delegate for e-learning.

Journal Editorship

Member of the editorial board of the following journals:

- *Network: Computation in Neural Systems*, Taylor & Francis

- *PLOS One*, PLOS

- *Scientific Reports*, Springer Nature

Research Support

- 2020–present Project H2020 – PON DL4Health (*Deep Learning for Health*).

- 2016–2018 Project PRIN *Performativity, Perception and Cognitive Sciences*.

- 2015–2017 Project H2020 – PON ADI (*Artificial Design Intelligence*).

- 2010–2012 Project POR FESR IPSE (*Industry Process Safety Engineering*).

- 2008–2010 Project POR FESR SafeMod (*Safety Modeling for High Risk Industrial Application*).

- 2002–2004 Project MIUR SEME (*Dizionario Visuale multilingua per i beni etno-demo-antropologici*).

- 1995–1997 ESPRIT 94529420670 PREFER (*Parallel Realtime Evaluation of Fruit based on European Research*), this project has been selected as *ESPRIT - Success Stories* in 1997.

- 1993–1995 ESPRIT 6715 CONNY (*Robot Control based on Neural Network Systems*).

- 1992–1994 ESPRIT 5293 GALATEA (*Neurocomputing*).

- 1991–1994 Project MURST PR/8, D.M. n. 6777 *Robot per la raccolta automatica di agrumi*.

Selected Publications

Pietro Perconti and Alessio Plebe. Do machines really understand meaning? (again). *Journal of Artificial Intelligence and Consciousness*, 9:doi 0.1007/s42979–022–01259–x, 2022.

Arianna Pavone and Alessio Plebe. Resolving linguistic ambiguities by visual context. *SN Computer Science*, 3: 413, 2022.

Alessio Plebe and Pietro Perconti. *The Future of the Artificial Mind*. CRC Press, Boca Raton, 2022.

Arianna Pavone and Alessio Plebe. How neurons in deep models relate with neurons in the brain. *Algorithms*, 14: 272, 2021.

Chiara Lucifora, Giorgio M. Grasso, Pietro Perconti, and Alessio Plebe. Moral reasoning and automatic risk reaction during driving. *Cognition, Technology & Work*, 23:705–713, 2021.

Pietro Perconti and Alessio Plebe. Deep learning and cognitive science. *Cognition*, 203:Article 104365, 2020.

Alessio Plebe. Circuital and developmental explanations for the cortex. In Fabrizio Calzavarini and Marco Viola, editors, *Neural Mechanisms – New Challenges in the Philosophy of Neuroscience*, pages 57–81. Springer, Berlin, 2020.

Alessio Plebe and Pietro Perconti. Plurality: The end of singularity? In Andrey V. Korotayev and David J. LePoire, editors, *The 21st Century Singularity and Global Futures – A Big History Perspective*, pages 163–184. Springer, Berlin, 2020.

Alessio Plebe and Giorgio Grasso. The unbearable shallow understanding of deep learning. *Minds and Machines*, 29:515–553, 2019.

Gabriella Airenti, Marco Cruciani, and Alessio Plebe, editors. *The Cognitive Underpinnings of Anthropomorphism*. Frontiers Media, Lausanne, 2019.

Alessio Plebe and Vivian M. De La Cruz. Neural representations in context. In Antonino Pennisi and Alessandra Falzone, editors, *The Extended Theory of Cognitive Creativity – Interdisciplinary Approaches to Performativity*, pages 285–300. Springer, Berlin, 2020.

Giorgio Grasso, Chiara Lucifora, Pietro Perconti, and Alessio Plebe. Evaluating mentalization during driving. In Oleg Gusikhin and Markus Helfert, editors, *5th International Conference on Vehicle Technology and Intelligent Transport Systems*, pages 536–541, 2019.

Giorgio Grasso, Pietro Perconti, and Alessio Plebe. Assessing social driving behavior. In Waldemar Karwowski and Tareq Ahram, editors, *2th International Conference on Intelligent Human Systems Integration*, pages 111–115, 2019.

Gabriella Airenti, Marco Cruciani, and Alessio Plebe. Editorial: The cognitive underpinnings of anthropomorphism. *Frontiers in Psychology*, 10:1539, 2019.

Alessio Plebe. The search of "canonical" explanations for the cerebral cortex. *History and Philosophy of the Life Sciences*, 40:40–76, 2018.

Alessio Plebe and Vivian M. De La Cruz. Neural representations beyond "plus X". *Minds and Machines*, 28: 93–117, 2018.

Domenica Bruni, Pietro Perconti, and Alessio Plebe. Anti-anthropomorphism and its limits. *Frontiers in Psychology*, 9:2205, 2018.

Alessio Plebe. Cognition and computation. *Italian Journal of Cognitive Science*, 14:281–286, 2018.

Gabriella Airenti and Alessio Plebe. Editorial: Context in communication: A cognitive view. *Frontiers in Psychology*, 8:115, 2017.

Alessio Plebe and Giorgio Grasso. How "learning" become "deep". In *4th International Conference on the History and Philosophy of Computing*, 2017.

Alessio Plebe and Vivian M. De La Cruz. *Neurosemantics – Neural Processes and the Construction of Linguistic Meaning*. Springer, Berlin, 2016.

Alessio Plebe and Marco Mazzone. Neural plasticity and concepts ontogeny. *Synthese*, 193:3889–3929, 2016.

Alessio Plebe. What is 'wrong' in a neural model. *Cognitive Systems Research*, 39:4–14, 2016.

Alessio Plebe and Giorgio Grasso. The brain in silicon: History, and skepticism. In Fabio Gadducci and Mirko Tavosanis, editors, *History and Philosophy of Computing*, pages 273–286. Springer, Berlin, 2016.

Alessio Plebe and Vivian M. De La Cruz. Language and brain complexity. In Francesco La Mantia, Ignazio Licata, and Pietro Perconti, editors, *Language in Complexity*, pages 169–199. Springer, Berlin, 2016.

Iaakov Exman and Alessio Plebe. Software is part poetry, part prose. In Ana Fred, Jan L.G. Dietz, David Aveiro, Kecheng Liu, and Joaquim Filipe, editors, *Knowledge Discovery, Knowledge Engineering and Knowledge Management*, pages 365–380. Springer, 2016.

Alessio Plebe. Neurocomputational model of moral behaviour. *Biological Cybernetics*, 109:685–699, 2015.

Alessio Plebe and Vivian De La Cruz. When language shapes perception. *Rivista Italiana di Filosofia del Linguaggio*, 2:42–57, 2015.

Iaakov Exman and Alessio Plebe. Software, is it poetry or prose? conceptual content at the higher abstraction levels. In *Proceedings of the 6th International Workshop on Software Knowledge*, pages 9–17. Scitepress, 2015.

Alessio Plebe and Vivian M. De La Cruz. Color seeing and speaking – effects of biology, environment and language. In Wendy Anderson, Carole P. Biggam, Carole Hough, and Christian Kay, editors, *Colour Studies. A broad spectrum*, pages 291–306. John Benjamins, Amsterdam, 2014.

Alessio Plebe. Moral computation. In Andrea Lavazza and Giuseppe Sartori, editors, *International Scientific Conference on Neuroethics*, pages 11–12, 2014.

Alessio Plebe, Vivian M. De La Cruz, and Marco Mazzone. In learning nouns and adjectives remembering matters: A cortical model. In Aline Villavincencio, Thierry Poibeau, Anna Korhonen, and Afra Alishahi, editors, *Cognitive Aspects of Computational Language Acquisition*, pages 105–129. Springer, Berlin, 2013.

Alessio Plebe and Vivian De La Cruz. Color terms and perception in a cortical model. In Lindsay MacDonald, Stephen Westland, and Sophie Wuerger, editors, *Proceedings of the 12th Congress of the International Colour Association*, pages 1669–1672. The Colour Group, 2013.

Alessio Plebe and Pietro Perconti. The slowdown hypothesis. In Amnon H. Eden, James H. Moor, Johnny H. Søraker, and Eric Steinhart, editors, *Singularity Hypotheses*. Springer, Berlin, 2013.

Alessio Plebe, Vivian M. De La Cruz, and Marco Mazzone. A neural model of adjective acquisition. In Krzysztof Kosecki and Janusz Badio, editors, *Cognitive Processes in Language*, pages 225–236. Peter Lang, Berlin, 2012.

Alessio Plebe. A model of the response of visual area V2 to combinations of orientations. *Network: Computation in Neural Systems*, 23:105–122, 2012.

Alessio Plebe, Marco Mazzone, and Vivian M. De La Cruz. A biologically inspired neural model of vision-language integration. *Neural Network World*, 21:227–249, 2011.

Alessio Plebe. La rilevazione di coincidenze nella costruzione di categorie. *Sistemi Intelligenti*, 3:477–484, 2010.

Alessio Plebe and Marco Mazzone. Towards a key mechanism for category formation. In *Meeting of the European Society for Philosophy and Psychology*, page 88, Bochum (DE), 2010.

Alessio Plebe, Marco Mazzone, and Vivian M. De La Cruz. First words learning: A cortical model. *Cognitive Computation*, 2:217–229, 2010.

Alessio Plebe and Pietro Perconti. Qualia turing test – designing a test for the phenomenal mind. In Aladdin Ayesh, Mark Bishop, Luciano Floridi, and Kevin Warwick, editors, *Proceedings of the Towards a Comprehensive Intelligence Test (TCIT): Reconsidering the Turing Test for the 21st Century Symposium*, pages 16–19, Leicester (UK), 2010. The Society for the Study of Artificial Intelligence and the Simulation of Behaviour.

Alessio Plebe, Marco Mazzone, and Vivian M. De La Cruz. Colors and color adjectives in the cortex. In Carole Biggam, Carole Hough, Christian Janet Kay, and David Simmons, editors, *New Directions in Colour Studies*, pages 415–428. John Benjamins, Amsterdam, 2011.

Alessio Plebe. *Neuroni immateriali*. university press. Editori Riuniti, Roma, 2009.

Marco Mazzone, Vivian M. De La Cruz, and Alessio Plebe. Una simulazione biologicamente orientata dell'apprendimento di aggettivi: tra categorizzazione e concettualizzazione. *Sistemi Intelligenti*, 20:293–305, 2008.

Alessio Plebe and Vivian M. De La Cruz, editors. *Philosophy in the Neuroscience Era*. Squilibri, Roma, 2008.

Alessio Plebe and Rosaria Grazia Domenella. Object recognition by artificial cortical maps. *Neural Networks*, 20: 763–780, 2007.

Alessio Plebe, Vivian M. De La Cruz, and Marco Mazzone. Simulating the acquisition of object names. In Paula Buttery, Aline Villavicencio, and Anna Korhonen, editors, *Proceedings of the Workshop on Cognitive Aspects of Computational Language Acquisition*, pages 57–64, Stroudsburg (PA), 2007. Association for Computational Linguistics.

Alessio Plebe. A neural model of object naming. *Enformatika*, 2:130–135, 2007.

Alessio Plebe. A model of angle selectivity development in visual area V2. *Neurocomputing*, 70:2060–2066, 2007.

Alessio Plebe and Rosaria Grazia Domenella. Early development of visual recognition. *BioSystems*, 86:63–74, 2006.

Alessio Plebe. Learning visual invariance. In Michel Verleysen, editor, *ESANN 2006 – 14th European Symposium on Artificial Neural Networks*, pages 71–76, Evere (BE), 2006. d-side Publications.

Rosaria Grazia Domenella and Alessio Plebe. Can vision be computational? In Lorenzo Magnani and Riccardo Dossena, editors, *Computing, Philosophy, and Cognition*, pages 361–379, London, 2005. College Publications.

Alessio Plebe and Rosaria Grazia Domenella. The emergence of visual object recognition. In Włodzisław Duch, Janusz Kacprzyk, Erkki Oja, and Sławomir Zadrony, editors, *Artificial Neural Networks – ICANN 2005 15th International Conference, Warsaw*, pages 507–512, Berlin, 2005. Springer.

Alessio Plebe and Rosaria Grazia Domenella. Using multiple self-organizing architectures for object recognition. In *WSOM 2005: 5th Workshop on Self-Organizing Maps*, pages 489–497, Panthéon-Sorbonne University, Paris, 2005.

Alessio Plebe. *Il linguaggio come calcolo – dalla logica di Boole alle reti neuronali*. SCIENTIA. Armando Editore, Roma, 2004.

Alessio Plebe. An effective traveling salesman problem solver based on self-organizing map. In J. R. Dorronsoro, editor, *Artificial Neural Networks – ICANN 2002 International Conference, Madrid, Spain, August 2002*, pages 908–913, Berlin, 2002. Springer.

Alessio Plebe, A. M. Anile, and S. Rinaudo. Neural networks in circuit simulators. In G. Dorffner, H. Bischof, and K. Hornik, editors, *Artificial Neural Networks – ICANN 2001 International Conference, Vienna, Austria, August 2001*, pages 699–705, Berlin, 2001. Springer.

Alessio Plebe and Giovanni Gallo. Filtering echocardiographic image sequences in frequency domain. In S. Lončarić and H. Babić, editors, *Proceedings of the Second IEEE R8-EURASIP Symposium on Image and Signal Processing and Analysis, June 19-21, 2001, Pula, Croatia*, pages 238–249, Piscataway, NJ, 2001. IEEE Computer Society Press.

Alessio Plebe and Marcello Anile. A neural-network-based approach to the double traveling salesman problem. *Neural Computation*, 14(2):437–471, 2001.

Alessio Plebe and Giorgio Grasso. Localization of spherical fruits for robotic harvesting. *Machine Vision and Applications*, 13(2):70–79, 2001.

Alessio Plebe, Marcello Anile, and S. Rinaudo. Neural networks with higher level architecture for bipolar device modeling. In A. M. Anile, V. Capasso, and A. Greco, editors, *Progress in Industrial Mathematics at ECMI 2000*, pages 252–257, Berlin, 2002. Springer.

Alessio Plebe, Marcello Anile, and S. Rinaudo. Sub-micrometer bipolar transistor modeling. In U.van Rienen, M. Günter, and D. Hecht, editors, *Proceedings of the Third International Conference on Scientific Computing in Electrical Engineering, August 20-23, 2000 Warnemünde, Germany*, volume 18 of *Lecture Notes in Computational Science and Engineering*, pages 259–266, Berlin, 2001. Springer.

Michael Recce, Alessio Plebe, John Taylor, and G. Tropiano. Video grading of oranges in real time. *Artificial Intelligence Review*, 12(1-3):117–136, 1998.

Salvatore Cavalieri and Alessio Plebe. Manipulator adaptive control by neural networks in an orange picking robot. *International Journal of Neural Systems*, 7(6):735–755, 1996.

Michael Recce, John Taylor, Alessio Plebe, and G. Tropiano. Vision and neural control for orange harvesting robot. In *International Workshop on Neural Networks for Identification, Control, Robotics and Signal/Image Processing, August 21–23, 1996, Venice, Italy*, Piscataway, NJ, 1996. IEEE Computer Society Press. ISBN: 0818674563.