Erasmus+ Traineeship

EMPLOYER INFORMATION	
Name of Organization	MINT Lab – Minimal Intelligence Lab Universidad de Murcia, Spain
Contact Person	Dr. Paco Calvo, Professor of Philosophy of Science, and Principal Investigator of MINTLab.
Address	Edificio Luis Vives, Campus de Espinardo, Universidad de Murcia, Murcia 30100 Spain
Telephone	+34 868 88 77 52
E-mail	fjcalvo@um.es
Website	http://www.um.es/web/minimal-intelligence-lab

JOB DESCRIPTION	
Duration	2-6 months
Working Hours	20 hours per week
Project Description	Our research interests range broadly within the cognitive sciences, with special emphasis on plant intelligence, ecological psychology and embodied cognitive science. In particular, we study the ecological basis of plant intelligence by conducting experimental studies at the intersection of the areas of plant intelligence and ecological psychology.
Tasks of the Erasmus intern	The Erasmus intern will become familiar with the experimental protocols we currently implement on climbing beans (*Phaseolus vulgaris*) to study the ecological guidance of the movement of circumnutation under principles of biological sensorimotor control. The visitor will be expected to follow protocols and contribute to running basic experiments; in addition, will be expected to take part in theoretical discussions and reading groups being led by senior team members.

Requirements	B2 English level. Undergraduate/graduate students of Philosophy, Psychology, Biology, Cognitive Science, or related disciplines interested in the scientific/philosophical study of Plant Cognition. Some relevant publications are: **Calvo**, P., Trewavas, A. (2019) Plant cognition: grafting onto different paradigms. *Trends in Plant Science* (commissioned). **Calvo**, P. (2019) Going green: plant intelligence for Cognitive Science. *Trends in Cognitive Sciences* (commissioned). **Calvo**, P., Sahi, V., Trewavas, A. (2017b) Are plants sentient? *Plant, Cell & Environment* 40: 2858–2869. **Calvo**, P., Friston, K. (2017) Predicting green: really radical (plant) predictive processing. *Journal of the Royal Society Interface* 14: 20170096. **Calvo**, P. (2018) Plantae. In *Encyclopedia of animal cognition and behavior*. Vonk, J., Shackelford, T.K. (eds.). Springer. Abramson, C., **Calvo**, P. (2018) General Issues in the Cognitive Analysis of Plant Learning and Intelligence. In *Memory and Learning in Plants* (eds. M. Gagliano, F. Baluška, G. Witzany). Springer. **Calvo**, P. (2017) What is it like to be a plant? *Journal of Consciousness Studies* 24: 205–27. **Calvo**, P. (2016) The philosophy of plant neurobiology: a manifesto. *Synthese* 193: 1323–1343. **Calvo**, P., Baluška, F. (2015) Conditions for minimal intelligence across eukaryota: A cognitive science perspective. *Front. Psychol.* 6, art. 1329. **Calvo**, P., Baluška, F., Sims, A. (2016) "Feature detection" vs. "predictive coding" models of plant behavior. *Front. Psychol.* 7: 1505. **Calvo**, P., Keijzer, F. (2011) Plants: adaptive behavior, root-brains, and minimal cognition. *Adaptive Behavior* 11: 155–171. **Calvo**, P., Martín, E., Symons, J. (2014) The emergence of systematicity in minimally cognitive agents. In: Calvo, P., Symons, J. (eds.) *The architecture of cognition: rethinking Fodor and Pylyshyn's systematicity challenge*. MIT Press, Cambridge, MA, pp. 97–434. **Calvo**, P., Raja, V., Lee, D.N. (2017a) Guidance of circumnutation of climbing bean stems: An ecological exploration. bioRxiv doi: 10.1101/122358. **Calvo**, P. (2007) The quest for cognition in plant neurobiology. *Plant Signaling & Behavior* 2: 208-211.
What do we offer	MINTLab uses behavioural (time-lapse photography) and electrophysiological methods (electrome-OpenBCI) to observe plant roots and shoots navigational capacities. We offer the possibility to become familiar with cutting-edge techniques and to network and team up with a highly multidisciplinary team of researchers investigating Plant Cognition. Basic training will take place in the framework of the 3-years long project "Plant Intelligence for Robotics and AI" financed financed through a US Office

	of Naval Research project led by Prof. Paco Calvo.