Celso M. de Melo

DEVCOM *Army Research Laboratory*

PROFESSIONAL PREPARATION
Postdoctoral Scholar – Research Associate, USC *Marshall School of Business,* 2012-2015;
University of Southern California, Computer science Ph.D., 2012 *(Advisor: Prof. Jonathan Gratch);*
IST-*Technical University of Lisbon, Portugal, Computer Science* M.S., 2006 *(Advisor: Prof. Ana Paiva);*
IST-*Technical University of Lisbon, Portugal, Computer Science* B.A., 2004

APPOINTMENTS
2017-*Present, Computer Scientist,* DEVCOM *Army Research Laboratory;*
2015-2017*, Visiting Scholar,* USC *Institute for Creative Technologies;*

SELECTED PUBLICATIONS

- *Rivera, C., Byrd, G., Paul, W., Feldman, T., Booker, M., Holmes, E., Handelman, D., Kemp, B., Badger. A., Schmidt, A., Jatavallabhula, K., de Melo, C., Seenivasan, L., Unberath, M., Chellappa, R.* (2025) *Con-ceptAgent:* LLM-*driven precondition grounding and tree search for robust task planning and execution. Pro-ceedings of International Conference on Robotics and Automation* (ICRA).
- *Ma, W., Ye, L., de Melo, C., Yuille, A., Chen, J.* (2025) *A compound* 3D-*informed design toward spatially-intelligent large multimodal models. Proceedings of Computer Vision and Pattern Recognition* (CVPR).
- *Fonseca, H., de Melo, C., Terada, K., Gratch, J., Paiva, A.* (2025) *Evolution of indirect reciprocity under emotion expression. Scientific Reports.*
- *Kuwajerwala, A., Gu, Q., Morin, S., Jatavallabhula, K., Sen, B., Agarwal, A., Rivera, C., Paul, W., Ellis, K., Chellappa, R., Gan, C., de Melo, C., Tenenbaum, J., Torralba, A., Shkurti, F., Paull, L.* (2024) *Concept-Graphs: Open-vocabulary* 3D *scene graphs for perception and planning. Proceedings of International Confer-ence on Robotics and Automation* (ICRA).
- *Reddy, A., Shah, K., Paul, W., Mocharla, R., Hoffman, J., Katyal, K., Manocha, D., de Melo, C., & Chellappa, R.* (2023) *Synthetic-to-real domain adaptation for*

action recognition: A dataset and baseline per-formances. Proceedings of International Conference on Robotics and Automation (ICRA).

- *Kadambi, A., de Melo, C., Cho-Jui, H., Srivastava, M., & Soatto, S.* (2023) *Incorporating physics into data-driven computer vision. Nature Machine Intelligence.*
- *de Melo, C., Gratch, J., Marsella, S., & Pelachaud, C*. (2023) *Social functions of machine emotional expres-sions. Proceedings of the* IEEE*.*
- *de Melo, C., Torralba, A., Guibas, L., DiCarlo, J., Chellappa, R., & Hodgins, J.* (2022) *Next-generation deep learning based on simulators and synthetic data. Trends in Cognitive Sciences*, 26, 174-187.
- *de Melo, C., Marsella, S., & Gratch, J.* (2019)*. Human cooperation when acting through autonomous ma-chines. Proceedings of the National Academy of Sciences* USA., 116, 3482-3487.

SYNERGISTIC ACTIVITIES

- NATO *Panel Technical Team Member, Research Task Group* 214 *(Enabling* AI *Adoption for Enhance De-fense Interoperability) and* 215 *(*AI *Assurance & Security).*
- *Army Artificial Intelligence Innovation Institute* (A2I2) CRA *on "Large Pre-Trained Models for Command and Control" – Lead for* AI*-Enabled Decision Advantage Thrust Area, focusing on applying Generative* AI *for cross-echelon command and control.*
- *Technical Contracting Officer,* DARPA AI *Quantified program, focusing on studying the mathematical foun-dations of Generative* AI*.*
- CDAO *Task Force Lima Senior Council Member, focusing on understanding how to operationalize Genera-tive* AI *for the* DoD*.*
- *Associate Editor.* IEEE *Transactions on Affective Computing.*