

ELENA CORINA GRIGORE

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Interests

Robotics, autonomous driving, machine learning, deep learning, artificial intelligence, adaptive systems.

Work Experience

- **Senior Research Scientist at Latitude AI / Argo AI, Palo Alto, CA** September, 2021 – present
(Latitude AI became a successor-in-interest of Argo AI in 2023)
Learned Autonomy Behavior team (Latitude) / Prediction, Deep Forecasting team (Argo)

Model the behavior of relevant actors present in the environment of a self-driving vehicle (e.g., other vehicles, bicyclists, pedestrians, etc.):

- Develop and implement deep learning models to predict the future trajectories and other useful intentions of relevant agents (e.g., space occupancy, yielding / non-yielding behavior, etc.).
- Lead projects on full model development, including dataset creation, model prototyping, evaluation, and on-car model deployment.
- Utilize Python and PyTorch knowledge for model prototyping, implementation, and evaluation.
- Build up C++ skills by writing production-level code to deploy models on the self-driving car.
- Work on a dynamic and fast-paced team on different components of the prediction module, collaborating with various team members, and mentoring a summer intern.

- **Senior Research Scientist at Motional, Boston, MA** September, 2020 – September, 2021
Research Scientist at Motional, Boston, MA October, 2018 – September, 2020

Prediction and Behavior Modeling team

Applied deep learning techniques to model and predict the trajectories and intentions of the agents of interest in the environment of a self-driving vehicle:

- Utilized and expanded my research skills to develop models of how agents behave on the road, and to publish state-of-the-art solutions to top machine learning conferences [5].
- Applied large-scale deep learning models to real-world, large datasets involving temporal data.
- Utilized knowledge of Python and PyTorch, being part of the full process of creating and deploying deep learning models.
- Worked on a fast-paced team with strong collaboration practices, mentored summer interns, and worked with other teams to understand data constraints and establish interfacing between modules.

- **Research Intern at Uber Advanced Technologies Group** June, 2017 – August, 2017
San Francisco, CA
Deep learning for self-driving car perception team

Worked on the perception module of the self-driving pipeline, where the aim was to detect all targets of interest in the environment of the autonomous vehicle. Researched introducing temporal context into deep learning networks, including the use of multi-frames and recurrent neural networks.

Education

- **Doctor of Philosophy, Computer Science, Yale University** 2018

Advisor: Brian Scassellati

Ph.D. Thesis: Learning Supportive Behaviors for Adaptive Robots
in Human-Robot Collaboration

Available at: https://scazlab.yale.edu/sites/default/files/files/corina_dissertation.pdf

Applied machine learning techniques to endow robots with learning capabilities needed when placed in new environments or faced with new tasks. This included learning about the structure and progression of a

physical task, as well as about the actions human workers perform during this task. Investigated techniques including Hidden Markov Models and reinforcement learning in single- and multi-agent settings, where the robot’s aim is to provide supportive behaviors in human-robot collaboration scenarios [4], [3], [2].

- **Master of Philosophy, Computer Science, Yale University** 2015
- **Master of Science, Computer Science, Yale University** 2015
- **Master of Engineering with Study Abroad
Computer Science, University of Bristol, UK** 2012
 Advisors: Kerstin Eder (University of Bristol, UK)
 Anthony G. Pipe (Bristol Robotics Laboratory, UK)
 Christopher Melhuish (Bristol Robotics Laboratory, UK)
 Master’s Thesis: “*I Robot, I Think*”
 Applied machine learning techniques to model users’ intentions for object handovers in human-robot interaction scenarios [1].
 4-year program encompassing my Bachelor’s degree
 Study Abroad at University of California, San Diego (2010/2011)
 Master of Engineering with First Class Honors

Selected Publications

- [5] T. Phan-Minh, **E. C. Grigore**, F. A. Boulton, O. Beijbom, and E. M. Wolff, “Covernet: Multimodal behavior prediction using trajectory sets”, in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Virtual, 2020, June 1419, pp. 14 074–14 083.
- [4] **E. C. Grigore**, A. Roncone, O. Mangin, and B. Scassellati, “Preference-based assistance prediction for human-robot collaboration tasks”, in *Proceedings of the 31st IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Madrid, Spain, 2018, October 1–5.
- [3] **E. C. Grigore** and B. Scassellati, “Discovering action primitive granularity from human motion for human-robot collaboration”, in *Robotics: Science and Systems (RSS)*, Boston, USA, 2017, July 12–16.
- [2] **E. C. Grigore** and B. Scassellati, “Hierarchical multi-agent reinforcement learning through communicative actions for human-robot collaboration”, in *Proceedings of the Future of Interactive Learning Machines (FILM) Workshop at the 30th Annual Conference on Neural Information Processing Systems (NeurIPS)*, Full paper, Barcelona, Spain, 2016, December 5–10.
- [1] **E. C. Grigore**, K. Eder, A. G. Pipe, C. Melhuish, and U. Leonards, “Joint action understanding improves robot-to-human object handover”, in *Proceedings of the 26th IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, IEEE, 2013, November 3–7, pp. 4622–4629.

Honors and Awards

- **Best Paper Finalist, Intelligent Virtual Agents (IVA)** 2016
 “Verbal Communication Improves Perceptions of Friendship and Social Presence in Human-Robot Interaction”
- **Best Student Paper Finalist, International Conference on Social Robotics (ICSR)** 2016
 “Comparing Ways to Trigger Migration between a Robot and a Virtually Embodied Character”
- **Human-Robot Interaction (HRI) Pioneer** 2016
 Highly selective workshop that seeks to foster creativity and collaboration across HRI
- **Tocher Fellowship, Yale University, USA** 2014 – 2015
- **Engineering and Physical Sciences Research Council Fellowship, UK** 2010, 2011
 Summer Research Projects at the Bristol Robotics Lab, Bristol, UK
- **Head of Promotion Honorary Prize (Valedictorian),
Piatra Neamț Computer Science High School, Romania** 2008