

# 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 Argo AI, Palo Alto, CA, USA** September, 2021 – present  
**Prediction, Deep Forecasting team**

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

- Develop and extend deep learning models to predict the future trajectories and other useful intentions of relevant agents (e.g., yielding / non-yielding behavior).
- Lead project for full model development, including dataset creation, model prototyping, evaluation, and model deployment.
- Utilize my Python and PyTorch knowledge for model prototyping, implementation, and evaluation.
- Build up my 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, USA** September, 2020 – September, 2021  
**Research Scientist at Motional, Boston, MA, USA** 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 my 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, USA**  
**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, USA** 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](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, USA** 2015
- **Master of Science, Computer Science, Yale University, USA** 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