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**Felix Gervits\*** ([felix.gervits.civ@army.mil](mailto:felix.gervits.civ@army.mil)). *Learning through Dialogue for Human-Robot Interaction.*

Robots working alongside humans in novel environments will readily come across objects, actions, and tasks that they do not know about. As a result, mechanisms are needed for the robots to learn about these novel concepts through dialogue with humans. This is critical for future Army missions which will have artificial agents (e.g., Next Generation Combat Vehicle) embedded in human teams making decisions in the physical world. To achieve the goal of learning through dialogue, we created a computational model for automated question generation using a decision-theoretic approach. The model uses a decision network, which is a probabilistic graphical model that allows a robot to represent uncertainty across multiple modalities in order to ask clarification questions that maximize expected utility, and to learn from the responses. We have integrated the model into the DIARC (Distributed Integrated Affect Reflection Cognition) robotic architecture and developed a proof-of-concept demonstration showing a robot learning about novel concepts through dialogue with a human. (Received January 25, 2022)