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University of Stuttgart
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Bayesian Intent Prediction for Human-Machine Collaboration

PUI Perceptual User Interfaces

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Who Am I

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Perceptual User Interfaces

SimTech PostDoc project: Bayesian Intent Prediction for Human-Machine Collaboration

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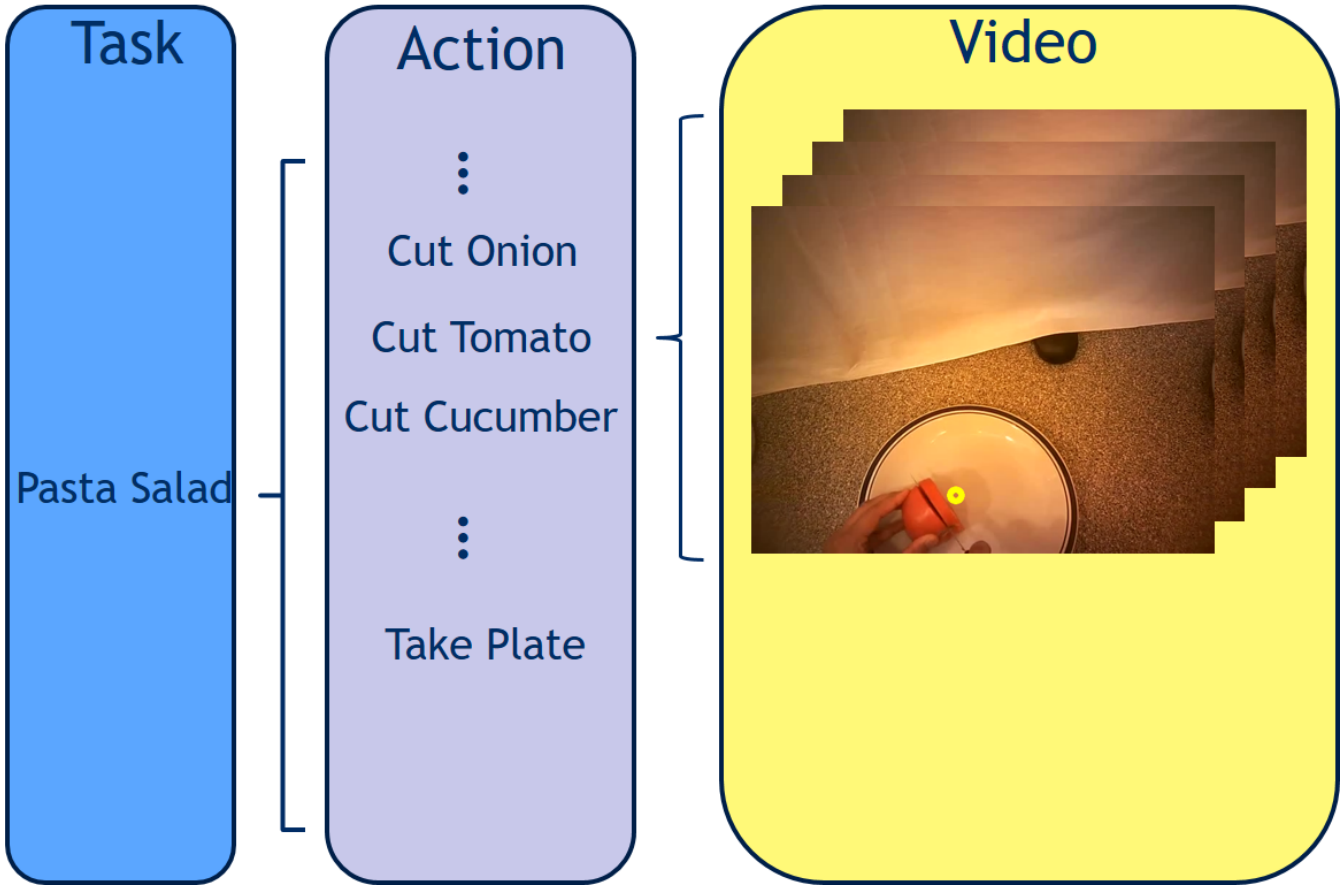
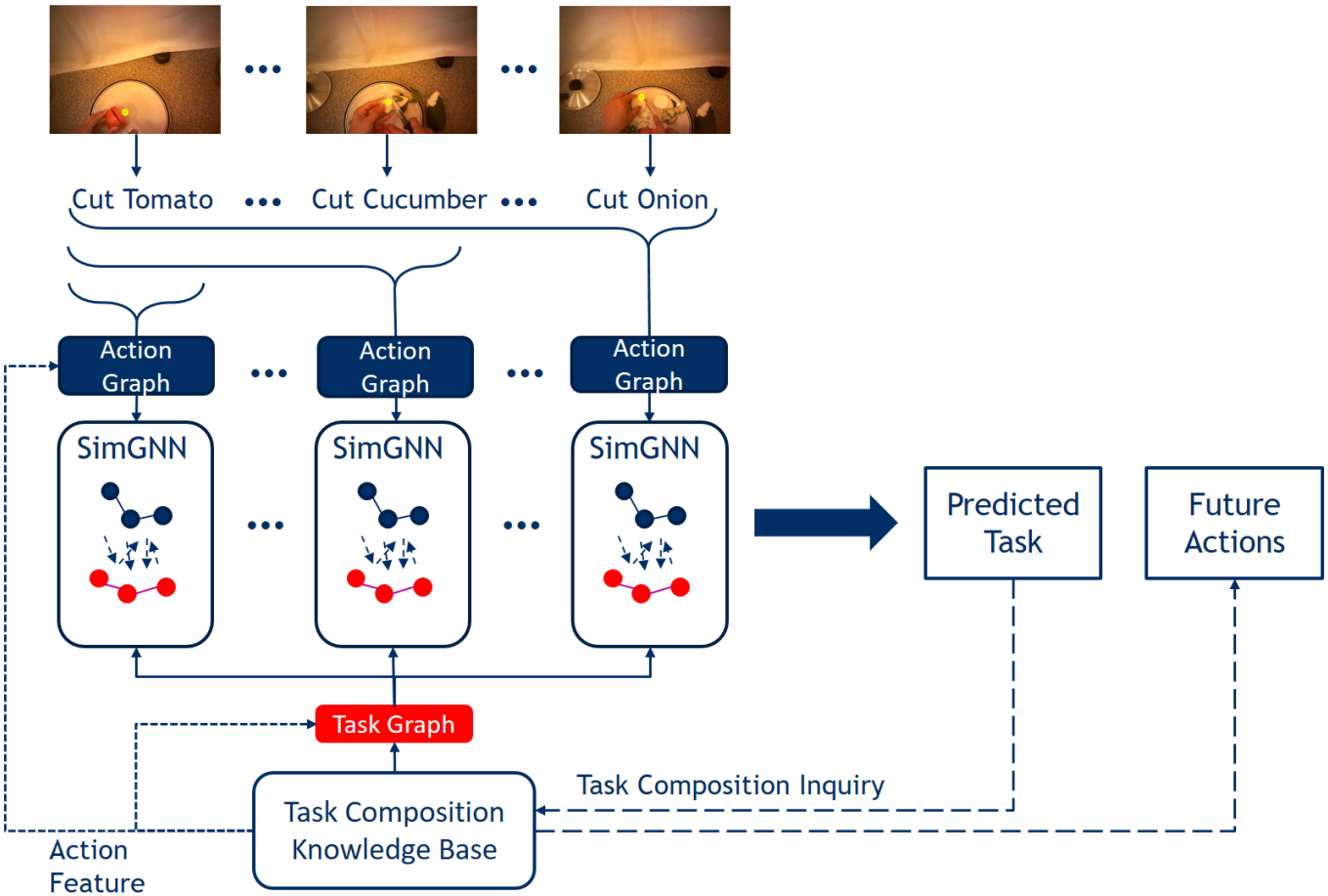
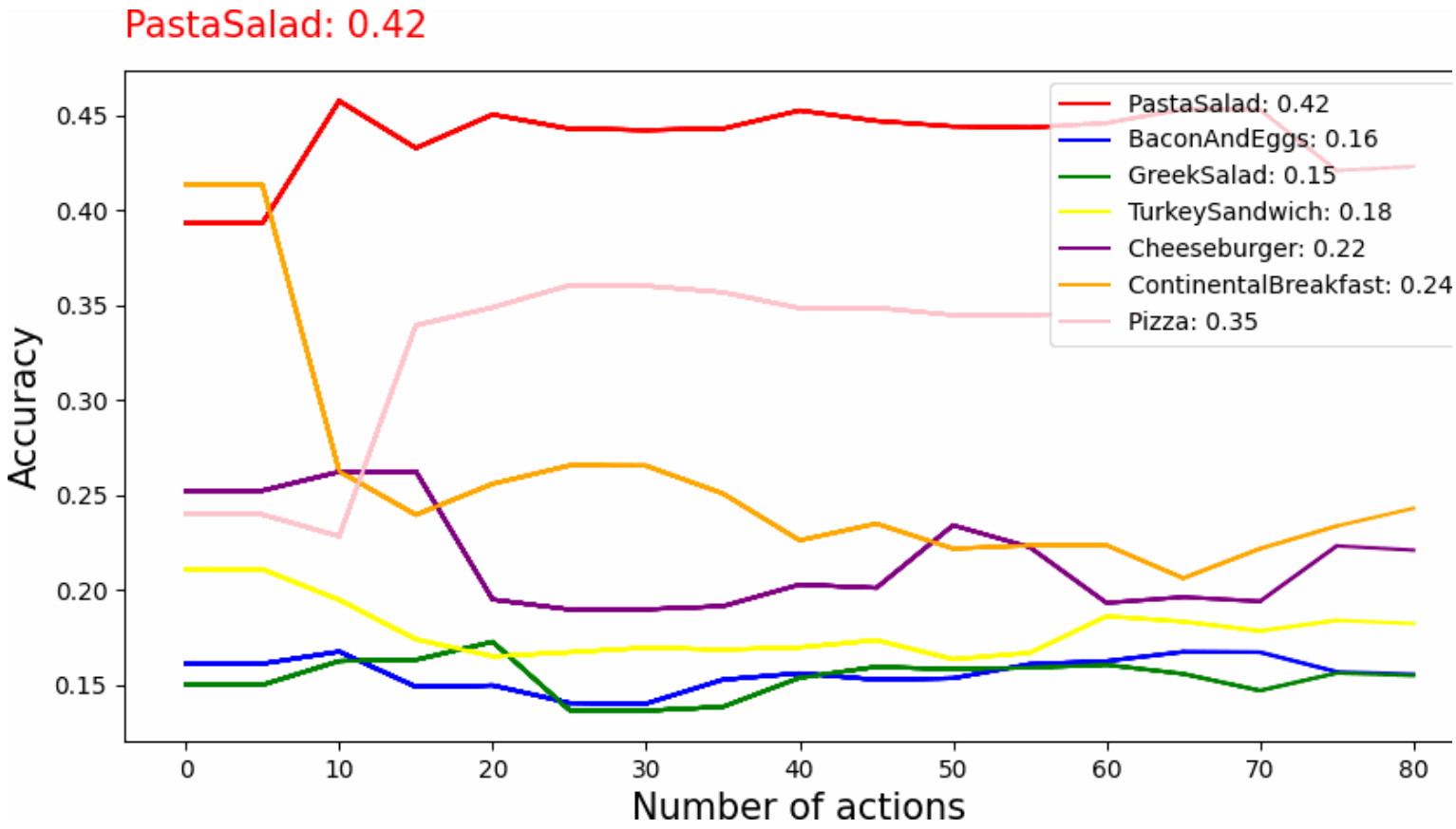
Predicting Task Category



Predicting Task Category



Predicting Task Category



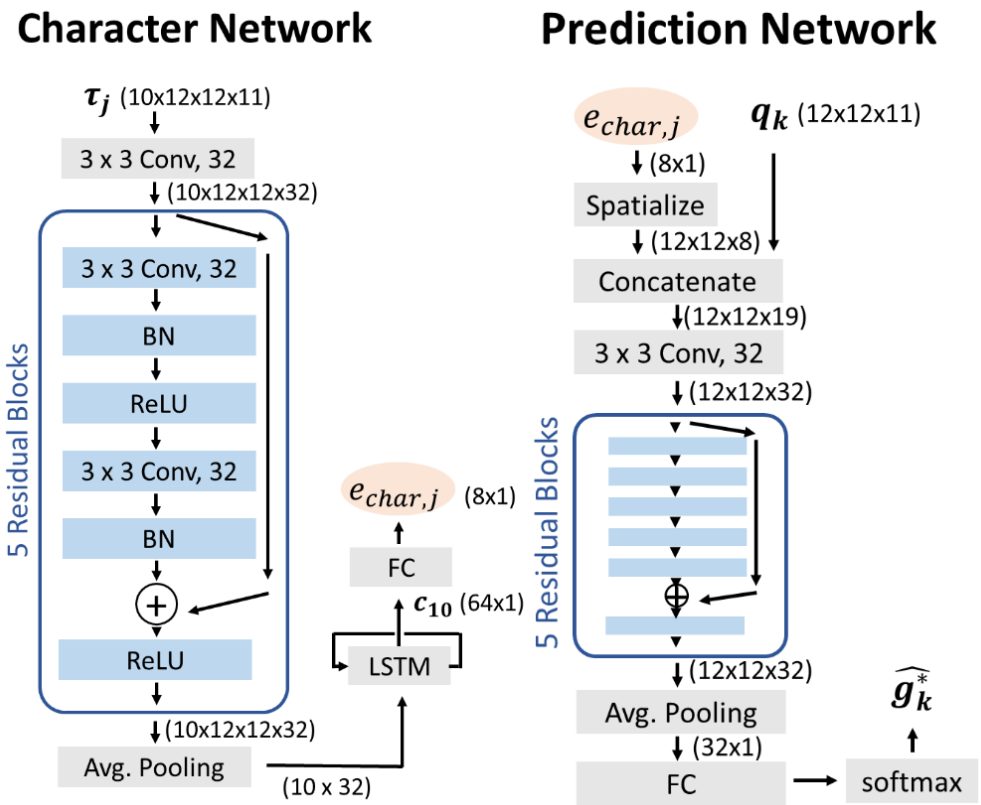
Predicting next question in goal-oriented Visual Dialog Answering with Theory of Mind model

Predict next question in MNIST-GuessNumber Dataset (Zhao and Tresp [2018])

#Question	Answer
1 Is it 2 in the image?	No
2 Is it in a yellow background?	No
3 Is it 9 in the image?	Yes
4 Is it in a white background?	Yes
5 Is it a stroke style digit?	Yes
6 Is it a digit in blue?	No
Guess: row 1 column 3	✔

Predicting next question in goal-oriented Visual Dialog Answering with Theory of Mind model

Train ToMNet+ (Chuang et al. [2020]) to predict the next question



References i

Y.-S. Chuang, H.-Y. Hung, E. Gamborino, J. O. S. Goh, T.-R. Huang, Y.-L. Chang, S.-L. Yeh, and L.-C. Fu. Using machine theory of mind to learn agent social network structures from observed interactive behaviors with targets. In *2020 29th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, pages 1013–1019. IEEE, 2020.

R. Zhao and V. Tresp. Efficient dialog policy learning via positive memory retention. In *2018 IEEE Spoken Language Technology Workshop (SLT)*, pages 823–830. IEEE, 2018.