

# Research

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## Research Interests

Computer Vision, Machine (Deep) learning and Artificial Intelligence.

## Current Research Focus

Probabilistic Graphical Models, tractable probabilistic modeling, integrating probabilistic graphical models and deep learning for computer vision tasks, neuro-symbolic AI.

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## Inference within Probabilistic Models

### Neural Network-Based Inference for Probabilistic Graphical Models

- Neural Network Approximators for Marginal MAP Inference (**AAAI'24**)
- Learning to Solve the Constrained Most Probable Explanation Task (**AISTATS'24**)

### Optimization based Inference Schemes for Graphical Models

- Deep Dependency Networks and Advanced Inference Schemes for Multi-Label Classification (**AISTATS'24**)
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## Activity Recognition and Video Understanding

- CaptainCook4D Dataset (**DMLR'23**)
  - Explainable Activity Recognition (**TiiS'23**)
  - Predictive Task Guidance in Augmented Reality (**Poster at IEEE VR'24**)
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## Multi-Label Classification

- Kernelized Random Vector Functional Link Network (**IJCNN'20**)