

## Reliable Deep Anomaly Detection: Solutions and Future Challenges

محمد سبک رو

پژوهشگاه دانش‌های بنیادی

### Abstract

Deep neural networks have achieved great performance where training and testing samples are sampled from the same distribution. Nevertheless, sometimes models encounter diverged samples from the training distribution. Failure to recognize an abnormal sample (i.e., out-of-training samples distribution), and consequently assign that sample to an in-class label significantly compromises the reliability of a model. Besides, anomaly detection is a fundamental machine learning task that has a great effect on downstream tasks. The problem has gained significant attention due to its importance for safely deploying models in open-world settings. In this talk, I will introduce out of distribution detection, novelty detection, and open set recognition all under the umbrella of anomaly detection. Then I will explore the current challenges and finally shed light on future lines of research.

### Biography

Mohammad Sabokrou is a senior postdoctoral researcher at the Institute for Research in Fundamental Sciences (IPM), school of Computer Science. He completed his Ph.D. in Artificial Intelligence in 2017. He has been a visiting researcher at the University of Oulu in Finland and the University of Technology of Troyes in France. He is working on the intersection of computer vision and machine learning, and his main research interests topics are Out of distribution detection, self-supervised learning, continual learning and XAI.

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