

## ■ 연구논문 요약문1

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| 논문제목        | Approximate training of one-class support vector machines using expected margin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 게재정보        | Computers & Industrial Engineering, vol130, 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 개요          | <ul style="list-style-type: none"> <li>- 연구 목적과 내용에 대해 소개 (서술식으로 작성해도 됨)</li> <li>- One-class support vector machine (OCSVM) has demonstrated superior performance in one-class classification problems. However, its training is impractical for large-scale datasets owing to high computational complexity with respect to the number of training instances. In this study, we propose an approximate training method based on the concept of expected margin to obtain a model identical to full training with reduced computational burden. The proposed method selects prospective support vectors using multiple OCSVM models trained on small bootstrap samples of an original dataset. The final OCSVM model is trained using only the selected instances. The proposed method is not only simple and straightforward but also considerably effective in improving the training efficiency of OCSVM.</li> </ul> |
| 연구결과        | <ul style="list-style-type: none"> <li>- 연구개발 결과를 가능한 한 비전문가가 이해할 수 있도록 설명 (서술식으로 작성해도 됨)</li> <li>- Preliminary experiments are conducted on large-scale benchmark datasets to examine the effectiveness of the proposed method in terms of approximation performance and computational efficiency.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 활용분야 및 기대효과 | <ul style="list-style-type: none"> <li>- 연구개발 결과의 활용 분야와 기대 효과를 서술 (서술식으로 작성해도 됨)</li> <li>- One-class support vector machine, a good candidate for anomaly detection method, is now sped up due to the approach proposed in the paper.</li> <li>- Fraud detection in finance and fault detection in manufacturing, popular applications of anomaly detection, is now more readily available and can be used in many more situations.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |