IEEE.org   IEEE *Xplore*   IEEE SA   IEEE Spectrum   More Sites

Cart   Create   Personal

👤⁺   →🔑 Account   Sign In

☰

Browse ⌄   My Settings ⌄   Help ⌄

Access provided by:
**CHONGQING UNIV OF
POST AND TELECOM**

Sign Out

All   ⌄

🔍

ADVANCED SEARCH

Multi-Party Federated Recommendation Based on Semi-Supervised Learning

Publisher: IEEE | Cite This | 📄 **PDF**

<< Results

Xin Liu   ;   Jiuluan Lv   ;   Feng Chen   ;   Qingjie Wei ; Hangxuan He ; Ying Qian   **All Authors** •••

®   🔗   ©   📁   🔔

6
Full
Text Views

Alerts

Manage Content Alerts

Add to Citation Alerts

Abstract

Authors

Keywords

Metrics

Media

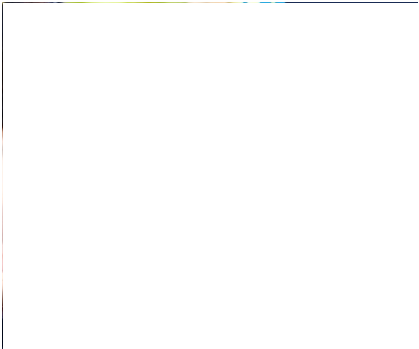More Like This

📄
Down
PDF

Abstract: Leveraging multi-party data to provide recommendations remains a challenge, particularly when the party in need of recommendation services possesses only positive samples... **View more**

▸ **Metadata**
Abstract:
Leveraging multi-party data to provide recommendations remains a challenge, particularly when the party in need of recommendation services possesses only positive samples while other parties just have unlabeled data. To address UDD-PU learning problem, this paper proposes an algorithm VFPU, Vertical Federated learning with Positive and Unlabeled data. VFPU conducts random sampling repeatedly from the multi-party unlabeled data, treating sampled data as negative ones. It hence forms multiple training datasets with balanced positive and negative samples, and multiple testing datasets with those unsampled data. For each training dataset, VFPU trains a base estimator adapted for the vertical federated learning framework iteratively. We use the trained base estimator to generate forecast scores for each sample in the testing dataset. Based on the sum of scores and their frequency of occurrence in the testing datasets, we calculate the probability of being positive for each unlabeled sample. Those with top probabilities are regarded as reliable positive samples. They are then added to the positive samples and subsequently removed from the unlabeled data. This process of sampling, training, and selecting positive samples is iterated repeatedly. Experimental results demonstrated that VFPU performed comparably to its non-federated counterparts and outperformed other federated semi-supervised learning methods.

查看PDF

EN   **Page(s):** 1 - 16

Publisher: IEEE

▶ **ISSN Information:**

Authors	⌄
Keywords	⌄
Metrics	⌄
Media	⌄

Back to Results

More Like This

A Novel Hybrid Machine Learning Algorithm for Limited and Big Data Modeling With Application in Industry 4.0

IEEE Access

Published: 2020

A survey of machine learning algorithms for big data analytics

2017 International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS)

Published: 2017

Show More

2024/1/8 14:48 Multi-Party Federated Recommendation Based on Semi-Supervised Learning | IEEE Journals & Magazine | IEEE Xplore

3/4

IEEE Personal Account	Purchase Details	Profile Information	Need Help?	Follow
CHANGE USERNAME/PASSWORD	PAYMENT OPTIONS VIEW PURCHASED DOCUMENTS	COMMUNICATIONS PREFERENCES PROFESSION AND EDUCATION TECHNICAL INTERESTS	US & CANADA: +1 800 678 4333 WORLDWIDE: +1 732 981 0060 CONTACT & SUPPORT	

IEEE Account

» Change Username/Password
» Update Address

Purchase Details

» Payment Options
» Order History
» View Purchased Documents

Profile Information

» Communications Preferences
» Profession and Education
» Technical Interests

Need Help?

» **US & Canada:** +1 800 678 4333
» **Worldwide:** +1 732 981 0060

» Contact & Support

About IEEE *Xplore* | Contact Us | Help | Accessibility | Terms of Use | Nondiscrimination Policy | Sitemap | Privacy & Opting Out of Cookies