**(工程类摘要）**

|  |
| --- |
| **Understanding Service Integration of Online Social Networks: A Data-Driven Study**  The cross-site linking function is widely adopted by online social networks (OSNs). This function allows a user to link her account on one OSN to her accounts on other OSNs. Thus, users are able to sign in with the linked accounts, share contents among these accounts and import friends from them. It leads to the service integration of different OSNs. This integration not only provides convenience for users to manage accounts of different OSNs, but also introduces usefulness to OSNs that adopt the cross-site linking function. In this paper, we investigate this usefulness based on users’ data collected from a popular OSN called Medium. We conduct a thorough analysis on its social graph, and find that the service integration brought by the cross site linking function is able to change Medium’s social graph structure and attract a large number of new users. However, almost none of the new users would become high PageRank users (PageRank is used to measure a user’s influence in an OSN). To solve this problem, we build a machine-learning-based model to predict high PageRank users in Medium based on their Twitter data only. This model achieves a high F1-score of 0.942 and a high area under the curve (AUC) of 0.986. Based on it, we design a system to assist new OSNs to identify and attract high PageRank users from other well-established OSNs through the cross-site linking function. |

**（医学类摘要）**

|  |
| --- |
| **Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia**  **BACKGROUND**  The initial cases of novel coronavirus (2019-nCoV)–infected pneumonia (NCIP) occurredin Wuhan, Hubei Province, China, in December 2019 and January 2020. Weanalyzed data on the first 425 confirmed cases in Wuhan to determine the  epidemiologiccharacteristics of NCIP.  **METHODS**  We collected information on demographic characteristics, exposure history, and illness timelines of laboratory-confirmed cases of NCIP that had been reported by January 22, 2020. We described characteristics of the cases and estimated the key epidemiologic time-delay distributions. In the early period of exponential growth, we estimated the epidemic doubling time and the basic reproductive number.  **RESULTS**  Among the first 425 patients with confirmed NCIP, the median age was 59  yearsand 56% were male. The majority of cases (55%) with onset before January 1, 2020, were linked to the Huanan Seafood Wholesale Market, as compared with  8.6% of the subsequent cases. The mean incubation period was 5.2 days (95%  confidence interval [CI], 4.1 to 7.0), with the 95th percentile of the distribution at  12.5 days. In its early stages, the epidemic doubled in size every 7.4 days. With a  mean serial interval of 7.5 days (95% CI, 5.3 to 19), the basic reproductive number  was estimated to be 2.2 (95% CI, 1.4 to 3.9).  **CONCLUSIONS**  On the basis of this information, there is evidence that human-to-human  transmissionhas occurred among close contacts since the middle of December  2019. Considerableefforts to reduce transmission will be required to control  outbreaks if similar dynamics apply elsewhere. Measures to prevent or reduce  transmission should be implemented in populations at risk. (Funded by the Ministry  of Science and Technology of China and others.) |