

Machine Unlearning

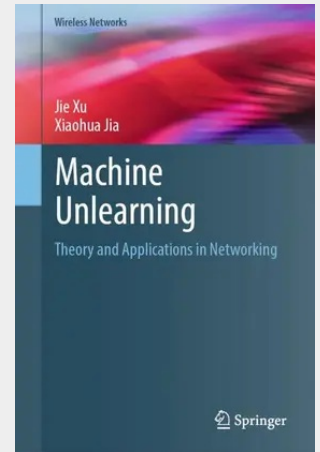
Theory and Applications in Networking

This book is a comprehensive guide to machine unlearning, covering both theoretical foundations and practical algorithms. The first part develops data influence measurement methods, including real-time and time-varying valuation frameworks. The second part presents exact and approximate unlearning approaches for large-scale models, with a focus on wireless and networked systems.

As AI models face growing demands to remove specific training data due to privacy regulations, security threats, or data quality concerns, machine unlearning has emerged as an efficient alternative to costly full retraining. This challenge is particularly critical in networked environments where user-generated data is continuously produced at scale.

This book is designed for researchers and graduate students in computer science, AI, and data privacy who seek to understand machine unlearning and explore open research challenges. It is also useful to industry practitioners in telecommunications and edge computing who need practical solutions for data removal and privacy compliance. By covering both current methods and future directions such as federated unlearning and unlearning for foundation models, this book provides a clear roadmap for advancing machine unlearning and building more trustworthy and adaptable AI systems.

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