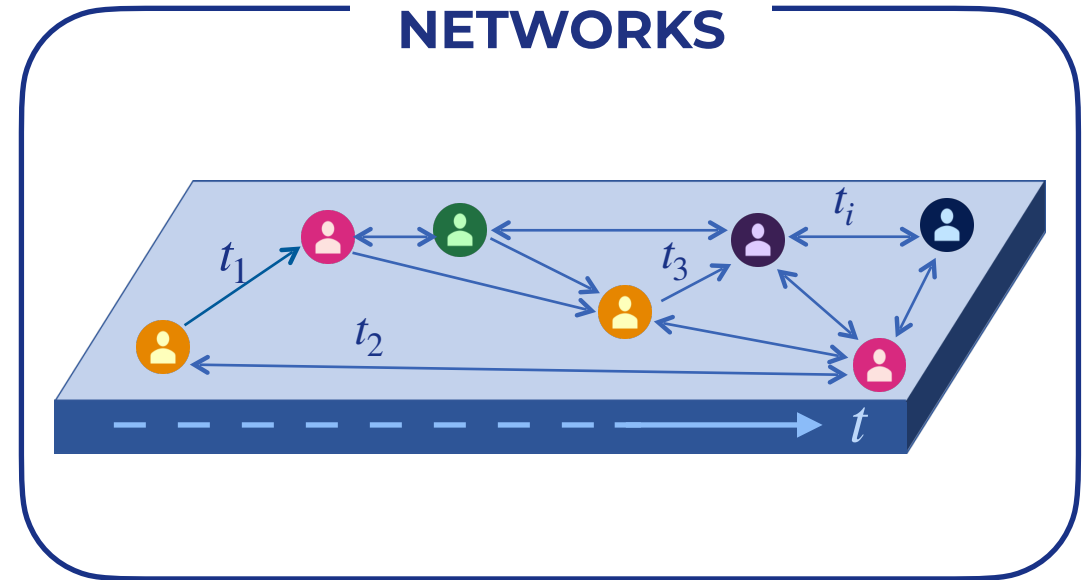


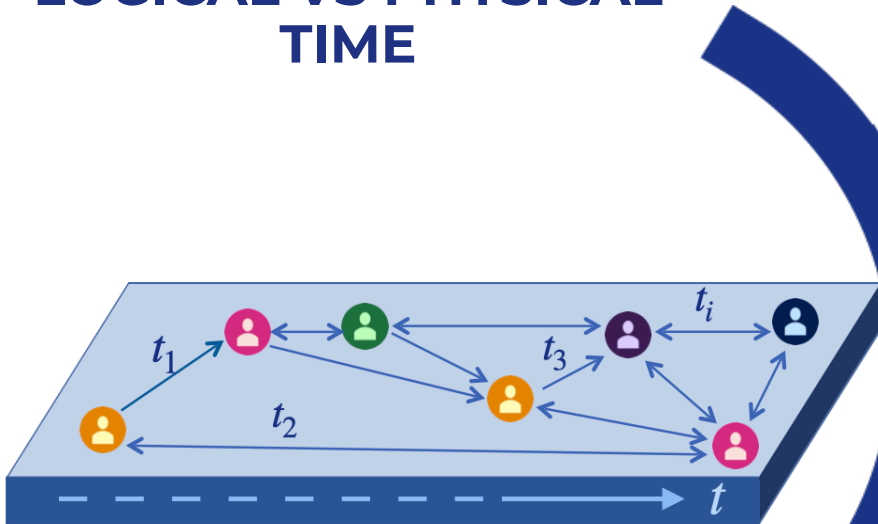
Online social networks

TEMPORAL NETWORKS



Network growth and evolution

LOGICAL VS PHYSICAL TIME



Data

Providers of large social networks generally consider their dynamic network data to be trade secrets and have no incentives to make such data available for research

- Facebook (publicly available)
- RenRen (in collaboration with the SandLab of UCSB and RenRen company)
- Steemit (publicly available)

Methods

Despite increasing efforts to study network dynamics, current analyses mainly focus on change over time of static metrics computed on snapshots of graphs

- Burstiness detection
- Link delay
- Link creation acceleration
- Temporal triadic closure delay
- Temporal motifs
- Evolution rules

Results

*The limited prior work mainly models network dynamics with respect to a logical clock.
We introduce metrics, methods and algorithms for physical time networks*

- Network growth and evolution patterns
- Burstiness characterization
- Mesoscopic dynamics Characterization
- Impact of link recommendation
- Node role discovery
- User migration