# Understanding and Predicting Human Behavior in SN

UNIT- 4

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# Introduction

- Devices being connected enables continuously enjoy activities
- Ubiquitous computing environment  allows permanent  internet access
- Despite evolution of services, social aspects exists in every human behavior and activities Ex. Social Network
- Aware of communicating context is a key part of human interaction
- Applied to user community allows services to be composed and customized to user context
- Help understand users in a better way

# Contd…

- Despite technological revolutions, for end user, Quality of Experience (QoE) is important

- QoE = consequence  of (user's internal state, characteristics of the designed system , the context )

# User Data Management, Inference and Distribution

- Future Internet converge towards user-centric services.
- tied to specific scopes, lack adaption to heterogeneity (devices, technologies), user specificity
- Needs user profile management  systems
- Most existing proprietary,  include limited information about user preferences and contexts
- To apply user information across services and devices need interoperability

# Contd…

- Solution - Common Profile Storage (by 3GPP) – framework to streamline service-independent user data and storing it under a single logical structure
- logically centralized data storage, mapped to physically distributed configurations , allow data access in a standard format
- Approaches based on interoperability degree classified as : the syntactic, semantic and modeling approaches
- Such systems allows user data to be queried, subscribed or syndicated and ideally through web service interfaces
- personalization is important to generate new information from the existing one.

# Contd…

- user modeling and reality mining techniques enables to study patterns and predict future behaviors
- Operations must be managed within the scope of a user/human profile
- Controlled storage and access of operations managed preserving users privacy, security and trust
- Irrespective of any domain, SNA involves context-awareness and data mining
- Exploits data from various sources and analysed using tools that handle large data sets

# Contd…

- Real world situations derived from a complex set of features using context aware systems
- Complex situation handled thru sensing devices,  based on multiple reasoning steps and schemes
- Complex situation decomposed to hierarchy of sub-situations
- sub-situations are handled autonomously
- Alternate approach Layered Reasoning  done at different  stages

# Contd…

- first stage - feature extraction and grouping
- second  stage - event, state and activity recognition
- last stage - prediction and inference of new knowledge
- SNA researches focuses on quantifying or qualifying the relationship between peers
- Use algorithms to compute  proximity, influence or importance and similarity
- user data associated with time and space dimensions +  data mining techniques enables to find hidden patterns

# Technologies enabling new Human Experience

- Social Network :
- relations among people engaged in the group, either for specific reasons or for more general purpose
- Not related also validated based on objectives and social values
- It is reciprocal responsibilities and roles self-interest based
- Social networks trusted because of shared experiences, perception of shared values and shared needs – hence created complexities
- Compared to other networks gives invaluable insights on the people in the group

# Reality Mining

- It empowers approximating both worlds (online, offline) giving info about people actual behavior
- It analyse sensor data (mobile, cameras, satellite) to predict future human behavior
- Aggregating collecting data allows data/events correlation and consequently future occurrences extrapolation

# Context-Awareness

- Today services need devices to react  based on environment
- Devices has rules, intelligent stimulus and act accordingly
- Hence context is available, meaningful, and carries rich information in such environments
- users' expectations and user experience is directly related to context
- acquiring, representing, providing, and using context becomes a crucial enabling technology for the vision (disappearance of computers in everyday environments)