An Adaptive, Emotional, and Expressive Reminding System

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An adaptive reminding system

- Two-step action selection
  - iCalendar and historical data: categorization / prioritization
  - user- and device-context: appropriate forms of notifications

- Produces: combinable reminders
  - GUI: item in pending list, pop-up dialogue, sound
  - E-mail interface: e-mail, mobile e-mail

- User feedback and reward system
  - explicit replies (GUI or e-mail)
  - iCalendar updates
  - other interactions
Overview of the GUI

- Graphical agent
- Calendar item information
- User context
- Possible user responses
- Lists of pending items
Light-weight useful feedback?

• Issues
  • updates of calendar data: implicit replies
  • combinable reminders: at most one wins
  • delays in user reply

• Together with a reminder, 5 possible user replies
  • **Accept**: useful, and will do it now [++]
  • **Later**: useful, but should be reminded again [+]
  • **Too early**: could be useful if reminded later [-]
  • **Ignore**: insignificant item [-]
  • **Too late**: should have been reminder before [--]
Emotional?

• Alternative way of computing rewards
  • to evaluate the “usefulness” of the system
  • from **user replies** (explicit user feedback)
  • from the **history of interactions**
    • successive positive/negative feedback
    • number of user-initiated interactions
    • delays in replying to reminders

• Few basic emotions → global mood = reward
  • **joy** after successive positive feedback [;++]
  • **sadness** after successive negative feedback [--]
  • **boredom** when few calendar items to process [-]
  • **worry** when too many awaiting reminders [-]
  • **surprise** when getting an unexcepted feedback [+/-]
Expressive?

- **Inform the user** about the “self-satisfaction” of the system
  - quality of the learning process
  - quality of the interaction with the user

- **Incite the user** in interacting with the tool
  - “Tamagochi effect”: induce fun, or guilt...
  - better interaction → better organization?

- **Engaging but non-intrusive**
  - cartoon-like, no speech
  - few expressed emotions
Conclusions and future work

- **TamaCoach** = adaptive + emotional + expressive agent
  - adaptive: learns when and how to notify the user
  - emotional: to compute reward values
  - expressive: to inform and engage the user

- **Feedback mechanism** = fixed user replies
  - benefits: easy to install a user routine
  - drawbacks
    - not adaptive... yet?
    - not enough feedback for the learning system

- **Prototype**: the adaptive module is now under evaluation
- **Next**: integration of the emotional/expressive part + evaluation
- **But**: virtual coach for personal time management... ?!
  - to monitor and analyze user behaviour
  - to comment and give advice