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Area di ricerca: Information and Communication Technologies / ICT
Acronimo E-MODEL SYSTEM
Titolo An event-based hyper-graph database implementation for multimedia content management
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Abstract 3° anno di progetto

The E-model system project, which has grown rapidly together with the eLifeLog.org community, matures shaping itself into the open source project for the public. Its documentation, case studies and prototype implementation have been repeatedly carried out through the third year making fast improvement. The project is now getting out of the prototype stage to reach the public for the distribution.

Also many small projects have been proposed in the collaboration with community members to use the E-model system as the backend for various lifelogging experiments. The eLifeLog.org has hosted 24 ongoing/finished sub-projects supporting hardware, software and technical advices on the E-model system. These small projects have been great resources for the system enhancement based on developers’ feedbacks, evaluations and direct contribution of open source codes for this project. Compared to the second year, E-model APIs have now enriched to 18 classes for the server operation, 39 Web services and 38 classes for the client interaction. Developer’s API guides and tutorials now include video feature clips, native mobile App developing guidelines and online live demos (See Figure 1 (a)-(d)).

In the third year, the E-model system further supports for the personal device including smart phones. Its APIs now help developers build their own lifelogs for their personal needs without complication. Figure 1 (e)-(h) shows a number of the current eLog demo App screenshots completely developed only using the E-model client API. It is available for developer distribution and is planned for the submission to the App store for the public access when the App gets functionally enriched.

In addition to above changes, one new task, “Research on Complex Event Processing” is proposed to study on real-time event streams as the addition to the original plan. This research task is focused on incorporating new types of data sources on human behaviors including ambient sensors...
on user environments, portable mobile computing platforms and new social media types. The objective is accompanying these newly typed temporally ordered event streams using the E-model system in which relationships and causalities are modeled and trained as the pattern of human daily activities. For instance, automated summary generation of one’s daily life can be described as automated software reasoning on complex situations with the lack of contexts.

The E-model system was initially designed to help such event sequence analysis over the information graph stored in the database and it is further extended on this year to handle real-time streaming data directly from sensors. For this, EsperTech’s CEP real-time streaming engine is adopted to handle real-time streaming data and accordingly the database adaptor for the communication with the E-model server is also developed with case studies for the community.

This project has been standing on the open-source policy and has maintained the open architecture for developers and users for the public. The entire E-model software system is publicized at https://www.elifelog.org as the open source software system.

(a) E-model system documentation  
(b) Tutorials and programming guides  
(c) Online live demo: UI in a figure is a live App  
(d) Video demos on eLog Client APIs  
(e) Login splash  
(f) Data management  
(g) GPS tracking  
(h) Photo stream view

Figure 1. The E-model system API & Mobile App (developer edition) screenshots.

Reference: https://www.elifelog.org