

Personalising mobile maps with AI for better fit

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Abstract:

The rapid advancement in mobile technology has transformed how users interact with their environment, with mobile maps playing a crucial role. However, the generic nature of current mobile maps often fails to meet the unique needs and preferences of individual users. This calls for the integration of AI to personalise mobile maps, enhancing their relevance and utility. By leveraging AI, mobile maps can learn from user behaviour, preferences, and contextual data to deliver tailored map experiences. Here, we suggest exemplarily methods to personalise mobile maps with AI beyond their core functionalities.

By analysing current and previous user interactions with mobile maps, AI models can identify and learn preferences, possible accessibility needs, and frequently used features to adjust map content, interface modes, and symbology accordingly. With clustering, similar user profiles can be grouped to apply common symbology preferences across users with comparable behaviours and preferences.

Mobile maps can be personalised by adjusting the visibility of POIs based on relevance, time, and user preferences. POI symbols for frequently visited or favourite locations can be customised to make them easily recognizable.

With reinforcement learning and feedback mechanisms, map personalisation can continuously be improved based on user feedback and interaction outcomes. AI algorithms can learn from user interactions to determine preferred icon styles and automatically adjust the symbology accordingly. Continuous learning over time can adjust the adaptations to the user to mitigate possible confusion of users by too strong changes in the mobile maps.

Mobile map based can be personalised based on real-time data and context, such as the environment, or events to modify, change or update map symbols (e.g., adjusting contrast, size, and detail of symbols). AI models can be trained on user data and map information to infer user preferences and predict optimal symbol configurations for different contexts. Predictive models also allow for sending alerts and recommendations proactively, such as reminding users of upcoming events.

By implementing these methods, mobile maps can provide a highly personalised and user-friendly experience, ensuring that the symbology aligns with individual preferences, needs, and contexts.