

3D Modelling Project: The Valaam Monastery's Church of the 1930s

This project aims to model the Valaam Monastery's church from the inside and, possibly, some structures from the outside, too.

At the outset, we will collect as much material as possible that is needed to implement this project, such as drawings; photographs; text material; and, say, scale drawings, which will form the project's Stage 1. Instead of modelling the entire landscape with its buildings, related church items, and so on to form a single 3D scene, we will take a slightly different approach. Accordingly, we aim to create a scene dynamically from a model library by modelling the church, its surroundings, and other items in the form of modules, which are dynamically loaded into the scene. For the time being, we have not analysed the need for modules or module packages for Stage 1. A module-based approach enables the creation of a real-time 3D environment that is appropriate for each purpose in question. So, there is no need to model objects several times for each environment unless, for example, a special 3D model is required for different eras. A change made to a certain object simultaneously affects all instances. In addition, this modular structure makes it easier to manage large entities.

The resulting application is primarily targeted at visitors to Evakkokeskus – a Karelian orthodox cultural centre in Iisalmi, eastern Finland. This application will enable the visitors to get a closer view of the Valaam Monastery's church as it looked before the Second World War and also provide them with the opportunity to witness its transformation up to the present day. Since many people are unable to visit the actual church location, new technology will provide them with the best possible virtual, experiential adventure enabled by this project. When it comes to the viewing facilities at Evakkokeskus, the aim is to build optimal premises for a virtual expedition. In the future, the database-driven application will also provide researchers with new opportunities to look into the

Valaam Monastery's church, especially as an increasing amount of material is incorporated into the database. For example, it will be possible to more thoroughly examine missing and/or lost church items by combining items from different eras 'on-the-spot' in the virtual environment. In this way, it will be possible to quickly verify items visually by era or age.

Done Information and the Seminaarinmäki project of the University of Jyväskylä act as the project partners with Evakkokeskus. Our projects provide us with additional information on, for example, how to download modules from the database into the 3D scene.

This one-year project aims to model the Valaam Monastery's church from the outside, the most important items found on the scene, and some of the church's surroundings. In this respect, 3D client programming will present a major challenge, especially for modelling lighting and vegetation. For vegetation subject to modelling, not just any vegetation is acceptable. For example, if we model a birch, we may not use a broad-leaf tree as a general model. The resulting model must correspond to a real birch.

Some constraints will be set by the fact that the project deliverable will be housed on the Evakkokeskus premises; that is to say, rather than creating a large virtual environment, building this solution will require cost-efficiency and the use of ordinary, present-day technical tools. Due to the tight project schedule, we will focus on producing application logic that allows us to implement similar projects more efficiently.

As I told you earlier, the main purpose of this application is to provide its users with an experiential, virtual trip to the church of the Valaam Monastery. We all know that the sense of having an experience is always a subjective matter, which cannot be guaranteed for everyone. However, we can provide the optimum conditions for giving rise to experiential feelings. This means that the resulting 3D environment must be visually harmonious and as realistic as possible. Consequently, this requires us to pay attention to materials, lighting, and the church's surroundings in the

application. The application must not only respond quickly to user requests but also be as immersive as possible. Real-time and unrestricted 3D motion as such presents major challenges to its users. Considering the location and prospective user group of the application, the application's user interface, its usability, and the resulting experience from its use will present a challenge. As we all know real-time 3D environments have long been taken for granted in computer games and other such interactive applications. However, these games are used by a computer-literate generation that is much younger than the target group of the Valaam Monastery church's application.

In any case, in historical terms, this application will require more from its users than if it were an application designed for a sheer playful adventure; that is to say, it is important to know historical facts in order to make the most of this application. If you think of, for example, ordinary museums, art exhibitions, or outdoor monuments, you can usually consult a guide on the spot or, say, participate in a guided tour. In this respect, manuscripts and dramaturgy have come to play a vital role. So, why are these aspects highlighted in this application? From the perspective of usability and informativeness, it is important to incorporate a guide into the application to help its users, provide them with information, and – if possible – enable them to experience the sense of a 'live' experience, and associated feelings. Interaction between the application and the user increases when users do not need to find the functions in the application by trial and error. However, it is possible that we will leave a few functions to be discovered in the application, enabling more experienced users to take pleasure in the application for a long time to come.