



AimValley is a world class engineering and innovation center that designs and builds networking solutions. We are based in Hilversum, with a strong presence in the USA and India. We started in 2003 as a spin-off from Lucent Technologies (a successor from the American company AT&T), that is why we have a strong background in telecommunication solutions and have build-up vast expertise in real-time processor techniques. Most of our design & development is done in-house.

Product development entails preparation of requirement documents, specification of system architecture, electronic development (block diagrams, board design, system certification, mechanical design), FPGA/ASIC development, software development, system verification and product/factory introduction. AimValley makes use of FPGAs to process high speed transmission functions. Real-time requirements are also key in our software development.

Our business is about people and our teams are dynamic, skilled and passionate about technique. Recruiting and training the right talent is an essential part of the AimValley DNA. We have over 80 employees of which 75% works as design expert in the R&D organization. All R&D employees have a college or university level education.



Project Introduction - Smart Application Monitoring

AimValley's embedded systems are deployed all over the world and are designed to work for many years without problems. The basis for a very low mean time between failures is a strong development process and an architecture that supports that goal. Traditionally unit tests, integration test and verification test are part of this process to ensure that the system works as designed.

AimValley often uses the AimOS platform to develop new applications as it is very portable, reliable and easy to customize to the customers needs. Traditionally tests are written and executed with specific results in mind (action and response) and upon failure asserts fired and events are raised. These type of tests can easily be automated. Besides the obvious functional errors we also test the system in stress situations. Note that the developed systems are almost always networked systems and the interaction with other systems impacts the stability, responsiveness and reliability of the provided solution.

This assignment targets a different approach where we want to investigate if machine learning/AI can be used to monitor the system and detect when it is deteriorating. This means that we do not want to look at functionality, but to stability, responsiveness and performance. For instance when new functionality is added or a patch is applied to the system we want to know of the system still is operating within the boundaries of the design parameters.

Project Description

- > Define parameters that are required to monitor the health of the system. For instance message queues, resource allocation, delays of message delivery, task scheduling, etc.
- > Utilize a generic model for every application that uses the AimOS platform.
- > A subordinate target is to investigate if we can run the ML app on the target system during field deployment and report stability problems. Of coarse without impacting the systems performance

Complexity

- > Defining a behavioral model that is applicable and not relies on assets, events, and functionality but on system health.
- > Determining what information needs to be extracted from the system.



Keywords for this project

- > Embedded Systems
- > Artificial Intelligence
- > Machine Learning

Affinity

- > C/C++, Python
- > makepp, Dockers
- > Linux, Jenkins

Skills

- > Communicative
- > Independent
- > Competent in English

Are you a student with a can-do attitude and a passion for technology?

AimValley is your company!

Why not join us today: working@aimvalley.com