

# Propositions Accompanying the Dissertation

by *Gerrit Muller* Embedded Systems Institute  
e-mail: `gerrit.muller@embeddedsystems.nl`  
`www.gaudisite.nl`

## **Abstract**

This document contains the statements belonging to the PhD thesis *CAFCR: A Multi-view Method for Embedded Systems Architecting; Balancing Genericity and Specificity*.

### **Distribution**

This article or presentation is written as part of the Gaudí project. The Gaudí project philosophy is to improve by obtaining frequent feedback. Frequent feedback is pursued by an open creation process. This document is published as intermediate or nearly mature version to get feedback. Further distribution is allowed as long as the document remains complete and unchanged.

February 10, 2011  
status: concept  
version: 0

logo  
TBD

# 1. Methods for efficient CPU use

---

The importance of methods for efficient use  
of CPU and memory  
is underestimated by most software engineers.  
For visions such as  
*ambient intelligence* and *smart surroundings*  
these methods are indispensable.

## 2. The importance of content

---

A big emphasis on process and methods of system design happens at the expense of the content side of system design.

Process and method are only means  
that cannot result in good products  
without application domain know-how  
and know-how of the applied technologies.

# 3. UML is counterproductive

---

In practice UML is a counterproductive means  
for software and system design.

# 4. Generalizations obstruct

---

Generalizations are often an obstruction  
for finding new solutions.

# 5. An architect must first learn an engineering discipline

---

It is for the functioning of a system architect essential  
to have sufficient depth in a engineering discipline  
and to actively maintain this discipline.

## 6. From *product as box* to a *network of systems*

---

In the medical market a lot of user flexibility  
can be gained  
by making a paradigm shift from *product as box*  
to a *network of systems*.

The clinical practice becomes the focus point,  
instead of technology,  
while in the longer term a shift will be made to patient-centered.

# 7. Designers need empathic skills

---

To make human-oriented systems,  
software and system designers need empathic skills,  
to enter into the user's emotions, feelings, culture, and experience.

## 8. Measurement of the number of publications blocks

---

The measurement of the research results  
by counting the number of publications  
forces scientists to become more specialized.  
Integrating research is therefore less attractive,  
because it is more difficult to substantiate  
and to publish.

# 9. Nature is a good source of inspiration

---

Nature is a good source of inspiration  
to make more robust systems.

Systems that are designed by humans are,  
due to the pursuit of unification and standardization,  
more vulnerable than natural systems with a large diversity.

# 10. The Dutch youth welfare has problems

---

The youth welfare in the Netherlands can not cope  
with the large group of children from  
people without prospects and drug addicts.

This is ticking time-bomb threatening the Dutch society.

The causes are: over-specialism, too many reorganizations,  
spending cuts en the pursuit of naïve ideals.