Projects:

**Calibration of cameras from Terma Electronics**
When testing ammunition for guns and cannons, the track and rotation of the projectile has to be described just after firing. The company Terma Electronics in Århus has developed an unique system to measure the bullet by taking photographs with 25 cameras and the make measurements on the photographs in an electronic instrument. The system is exported all over the world. The cameras and their lenssystems has to be calibrated to find the cameraconstant, principal point and the lensdistortion in order to make the measurements.

Department of Applied Civil and Environmental Engineering
Department of Planning
Department of Civil Engineering

**Terma A/S**
Period: 01/06/1998 → 01/10/1998
Number of participants: 2
Project participant:
Poulsen, Erik Lund (Intern)
Project Manager, organisational:
Mærsk-Møller, Ole (Intern)

**Financing sources**
Source: Unknown
Name of research programme: Ukendt
Amount: 100,000.00 Danish Kroner

**Measurements on sails from Viking Ships**
In connection with aerodynamic studies of the sails of a viking ship, a description of the sails shape has to be given under different conditions of wind, course and waves. The sail on a replica of a viking ship is measured by means of photogrammetry and pictures taken from an other boat. The 3-dimensional shape is then derived from the pictures. Test measurements has been going on, and the final measurements under different wind, course and wave conditions are scheduled to take place during summer 1997 or summer 1998 depending on weather conditions.

Department of Applied Civil and Environmental Engineering
Department of Planning

**Nationalmuseets Marinarkæologiske Forskningscenter**
Danish Maritime Institute
Period: 01/09/1996 → 31/12/1997
Number of participants: 4
Project participant:
Projection of computer generated pictures in Tycho Brahe Planetarium, Copenhagen

The aim of the project is to describe the projection of slides with a superwideangle projector on to the dome in the Tycho Brahe Planetarium. A mathematical model of the projection is derived so that computer generated pictures can be "counter destored" prior to projection. First a slide with a well known geometry is projected on to the dome, and the projected picture is measured by means of theodolites. The result is then used to derive the model. In this way correct pictures can be seen by the spectator in the Planetarium.

Department of Applied Civil and Environmental Engineering
Department of Physics
Department of Planning
Operations Research
Department of Informatics and Mathematical Modeling

Tycho Brahe Planetarium
Period: 01/09/1996 → 01/02/1997
Number of participants: 4
Project participant:
Sørensen, Svend Erik Børre (Intern)
Poulsen, Erik Lund (Intern)
Hansen, Per Skafte (Intern)
Project Manager, organisational:
Mærsk-Møller, Ole (Intern)

Artificial Rainbow
A Danish company wanted to investigate if drops of fluids are present during their manufacturing of a special product. As the process takes place at a temperature of more than 1000 degrees Celsius, you can't look at the final product, because the fluid will have vaporized by that time. If however, drops are present during manufacturing, refraction of light should take place, and a "rainbow" should be seen. Problem: Can you make an artificial rainbow by illuminating an atomized fluid in the process chamber at 1000 degrees Celsius, and if so, can photographs of the rainbow be taken?

Department of Applied Civil and Environmental Engineering
Department of Planning
Period: 01/08/1996 → 31/10/1996
Number of participants: 2
Project participant:
Poulsen, Erik Lund (Intern)
Project Manager, organisational:
Mærsk-Møller, Ole (Intern)

Financing sources
Source: Unknown
Name of research programme: Ukendt
Amount: 40,000.00 Danish Kroner