René Roelands

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Dedicated and professional mechatronic system and embedded software architect with 25+ years experience in the high-tech industrial environment. Structured with attention to detail, cooperative with a focus on agreed decisions, analytical and result-driven.

EXPERIENCE

System Architect, KMWE
Eindhoven — 2019-present

As a system architect I have been responsible for the specification, design, and commissioning of high-tech systems and modules.

Accomplishments
- Specification and design of a platform for high-end bake and develop a system for Photomasks.
- Developed a PLC-based control platform.
- Co-development of DigitalTWIN.
- Successfully introduced a software development environment.
- Successfully initiated and authored project proposals.

System Architect, IBS precision engineering
Eindhoven — 2013-2019

As a system architect I have been responsible for the specification, realization, and commissioning of custom-built measurement and qualification machines.

Accomplishments
- Delivered dedicated machines for subsystem qualification in the high tech industry and research institutes, ASML. CERN, Carl Zeiss.
- Managed the industrialization of a 3D inline measurement system for the machine tool industry.
- Developed a real-time wireless measurement system and successfully demonstrated its performance on a MAGLEV stage at the EUSPEN conference.
- Developed a vibration compensation system for nanometer precision topography measurement system.
- Dynamical analysis mirror suspension.
- Successfully initiated and authored project proposals.

Mechatronics System Designer, ASML
Veldhoven — 2005-2013

As a mechatronics designer I have been responsible for mechatronic subsystems in the fields of pneumatics, optics, and robotics, materializing high-level systems requirements into integrated subsystems ready for volume production.

Accomplishments
- Translated system requirements into specifications for mechanics, electronics, software, and control.
- Agreed and tracked specifications to co-developing partners such as Carl Zeiss, RUAG, and VDL.
- Designed, prototyped, and implemented control algorithms.
- Modeled system dynamics.
- Specified, planned, and executed the qualification of subsystems.
- Transferred knowledge to customer support and manufacturing departments.
- Specified module qualification and diagnostic tooling.

Embedded Software Designer, ASML
Veldhoven— 2001-2005

As an embedded software designer I was responsible for motion control software for opto-mechatronic systems. I translated control requirements into real-time software specifications, design, and code.

Accomplishments

- Developed control algorithm for laser positioning system
- Specified, designed, and implemented motion control software for opto-mechatronic systems, including pneumatics, linear motors, piezo-actuators, etc.
- Responsible for project delivery of qualified software.
- Chaired the motion control competence club.
- Implemented software qualification tooling.

Research Engineer, Delem

Eindhoven— 1999-2001

During my period as a research engineer I was responsible for modeling and control of the hydraulics of industrial press brakes.

Accomplishments

- Designed and validated hydraulic press brake model.
- Created rapid-prototype environment for controller design.
- Redesigned valve controller.

Software Engineer, Delem

Eindhoven— 1997-1999

At Delem I worked as a software designer and was responsible for the design and implementation of the job preparation software.

Accomplishments

- Designed and implemented a patented tool optimization module.
- Developed job preparation software.

EDUCATION

Eindhoven University of Technology

MSc in mechanical engineering, systems, and control— 1991-2000

My graduation project was “Modeling Hydraulics, modeling, numerical and experimental validation of press brake model and control strategy”. During my graduation, I helped connect the industrial environment of Delem to the academic environment of the TUE.

Boxtel Jacob Roelands Lyceum

Gymnasium Beta— 1990

Dutch, English, German, Latin, Mathematics B, Physics, Chemistry, Economics.

SKILLS

- Dutch, English, German,
- C, C++, C#, Python., Beckhoff PLC, Labview
- Matlab, Simulink, SimMechanics, xPC, Modelica, UNITY

COURSES

- Object-Oriented Analysis & Design (ISES)
- Control Systems Tuning (CTT)
- Metrology and calibration of mechatronics systems (HTI)
- Labview Embedded Control and Monitoring / LabVIEW Core 1 (NI)

REFERENCES

Available upon request.