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Place of birth: Bad Saulgau – Germany

SUMMARY of SCIENTIFIC WORK

Since 1999

- Development of innovative medical devices out of Nitinol e.g. stents. The costumers can expect first results within 2 weeks followed by rapid prototyping and the set up of production lines, if the product is finalized and ready to sell. All developments are costumer related and adopted to the material's basic function and possibilities.
- Another field of investigation are mechatronic devices and innovative medical instruments especially for minimally invasive surgery. The focus is on medical applications and implants combined with the above mentioned smart materials like NiTinol.
- A field of research are mechatronic devices especially for medical applications and implants like an implantable wireless pressure sensor for measurement of the inner bladder pressure on paraplegic patients or monitoring of blood pressure 24 hours 7 days a week e.g. directly on bypass vessels. This was realised with miniaturized transponder technologies combined with smart materials like NiTinol for fixation in the bladder or on the blood vessel itself.
- Another field of investigation were guiding systems and robotic surgery systems for direct access in high magnetic fields such as magnetic resonance imaging (MRI) or computer tomography (CT). Work includes building of complete systems based on research in new and innovative MR-compatible smart optical sensors and pneumatic actuators and combinations of them completely out of MR-

compatible materials like ceramics and polymers.

- Responsible in the research field of porous materials e.g. ceramics, metals or polymers, as fundamental material for artificial cell growing structures. Also support structures for artificial cell growing devices are a strong focus of the institute. The solid structures are produced with micro machining and adaptive electronics. Precise regulation of the cell growing environment is one of the compelling results
- Consultant and auditor for QM system integration for small and medium sized medical

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WORK HISTORY

August 2007 – present	**CEO CREAMEDIX GmbH** Start-Up company for producing medical stents out of shape memory alloys
January 2009 – present	**LEAD AUDITOR FOR MEDICAL PRODUCTS** Auditor for the DQS GmbH in respect of the DIN ISO 13485:2003 + AC3007 including medical guidelines 93/42EWG
August 2007 - present	**QM SYSTEM INTEGRATION** Management consultant for quality systems integration in medical companies.
January 2002 – August 2007	**CEO ENDOSMART GmbH** Medical device Start-Up company from the Research Center Karlsruhe in the field of shape memory alloys
September 2004 - present	**GROUP LEADER MEDICAL APPLICATIONS AT THE INSTITUTE FOR BIOLOGICAL INTERFACES (IBG)** See above- scientific work
July 1999 –September 2004	**HEAD OF INSTITUTE FOR MEDICAL ENGINEERING AND BIOPHYSICS** All research groups were working in the above mentioned research areas. An additional research topic was stemcell for regenerative medicine and electromagnetic stimulation of cells.
January 2001 – December 2004	**MEMBER OF THE SUPERVISORY BOARD OF THE FORSCHUNGSZENTRUM KARLSRUHE**
July 1998 – July 1999	**HEAD OF MEDICAL ENGINEERING DIVISION** • Responsible for 34 Employees in the field of medical devices (see above).

January 1998 – July 1999	**HEAD OF ELECTRICAL ENGINEERING DIVISION** • Responsible for 11 Employees working in the field of designing control systems for mechatronic devices.
March 1994 – January 1998	**RESEARCHER IN MEDICAL INSTRUMENTATION AND MECHATRONICS AT THE FORSCHUNGSZENTRUM KARLSRUHE – GERMANY** • Development of an optical sensor system for use in a cardiac catheter to measure the pressure of the catheter against the inner wall of the beating heart while coagulating the WPW-syndrome. • Project leader for a team developing design and construction of medical endoscopic instruments and stents made out of NiTinol or other smart materials. Material research for medical applications. • Teleconsulting systems and teleoperation systems to handle long distance medical consulting problems.
February 1993 - 2008	**LECTURER AT THE BERUFSAKADEMIE KARLSRUHE - GERMANY** • Control engineering and automation for mechatronic devices and medical applications.
March 2004 – 2008	**LECTURER AT THE UNIVERSITY OF APPLIED SCIENCE KARLSRUHE (FH) – GERMANY** • Medical Sensorics

EDUCATION AND TRAINING

March 1994 - February 1997	**PhD DOCTORATE AT THE RESEARCH CENTER KARLSRUHE – GERMANY** Highest award: summa cum laude (1.0) • Developed a sensor- actuator system for tactile haptical feedback in minimally invasive surgery (force feedback systems for minimally invasive instruments). • Tactile display is also usable for 3D-tactile graphic displays for visually impaired people. •
October 1986 - December 1993	**STUDENT OF BIOMEDICAL ENGINEERING AT THE UNIVERSITY OF KARLSRUHE – GERMANY** Award: Prädikatsexamen (2.0)