

Umbreit, Tommy - Dipl. Wirtschaftsingenieur
Focus: Engineering
Professional experience: 4,75 years

RÉSUMÉ OF COMPETENCIES

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| - Expert in CAE-crash topics (model construction, analysis, optimization, validation) |
| - Expert in design of CAE-material cards and validation, associated with test and laboratory experience |
| - Exceptional striving for process optimization (process automation of any kind within the scope of CAE or testing through scripting) |

IT AND SW KNOWLEDGE

Simulation software

Ansa, Abaqus, LS-Dyna, Ansys, Hyperworks, Meta, Animator, Optimus, LS-Opt
Matlab-SIMULINK

Tools

Variety of self developed tools in order to fully automatically steer processes in Windows and Linux

Programming languages

bash, Batch, MATLAB, Python, Tcl, VBA,

Project leading tools

MS Project

PROJECTS

Toyota Boshoku Europe N.V. Munich Branch **October 2015 – December 2015**
(2.5 months)

Toyota Boshoku Europe N.V. Munich Branch, Geretsried **May 2013 – July 2015**
(27 months)

CAE-Simulation Engineer

Development support with simulative and testing topics with regards to side crash of the component TVKL in the Daimler-projects BR453 (Smart) and BR238 (E-class successor) as well as regarding topics such as materials and process optimization.

- Hired and responsible for setting up a dedicated in-house simulation department at Toyota Boshoku Europe

Daily Business:

- Inventory of current CAE-models with Ansa, LS-Dyna, Meta and Animator
- Optimization of the current CAE-models regarding performance in order to serve daily business
- Securing the adherence to customer guidelines regarding model criteria
- Steering of service providers
- Conduct, analysis and presentation of the simulations / results
- Implementation of optimizations for fulfilling the side crash requirements (no failing of components, appropriate forces progression, dummy results)
- Conduct of several calculation loops
- Organization and supervision of several tests, such as slide test and airbag level test
- Evaluation of test results and validation of simulation results

Process optimization:

- Complete reorganization to fully automated job starting, job evaluation, transferring job results via script based on .XML and Batch in Windows
- Integration of Toyota Boshoku specific templates and tools to Animator, in order to speed up the post processing of the results and automate them with TCL
- Automation of the extraction of Prescribed Motions from Daimler-databases for using them within the scope of in-house simulations

Building up material database and –competency:

- Acquisition of partners in order to cost efficiently determine material curves in tests
- Responsible for initiating internal and external material tests in order to receive stress and strain curves for the design of material cards and transferring them into a CAE-material card for CAE calculations.

Scope of technology:

Development, testing, research, product development, CAD

Tecosim (CAE-Service Provider), Munich

March 2011 – April 2013

(25 months)

CAE-Specialist

Parallel processing and steering of various projects for the BMW Group within the departments 'Development Complete Vehicle (EG)' and 'Development Car Body (EK)' for the 35up series (3series, 5series, 7series)

- Module construction of complete vehicles and conduct of complete vehicle calculations including the analysis with the help of Ansa, Abaqus, Animator and Hyperworks
- Validation of complete vehicle models to crash tests
- Automation of evaluation tools in the departments EG and EK with the help of Python, TCL und VBA
- Optimization and robustness analyses on the subject of motor carrier and smalloverlap in the department EK
- Evaluation and presentation of results including suggestions for optimization
- Trim of a simulation model with Optimus based on real test curves resulting from previous tests conducted at the testing service provider
- Induction and mentoring of new employees
- Project Management

Scope of technology:

Development, CAD

ADVANCED TRAINING

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|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| November 24th – 25th, 2015 | Simulink for automotive issues (throttle) |
| November 18th – 19th, 2013 | Synthetic and foam material models for crash simulation |
| October 18th – 19th, 2012 | Project Management 1 |
| August 28th – 29th, 2012 | Body construction for calculation engineers |
| November 17th-18th, 2011 | Material modeling for the definition of parameters for crash simulation, test procedures and validation |

EDUCATION

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| October 2005 – March 2011 | University of Applied Science Kempten Degree: Diplom-Wirtschaftsingenieur Maschinenbau Focus: Microsystems technology, control engineering, mechatronics, FEM |
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Diploma thesis in the laboratory for microtechnology at the FH Kempten ***November 2010 – March 2011***

(4 months)

Degree candidate

Optimization of an inductive vibration energy converter based on magnetostatic FEM-simulation (application for a patent within the BmBF-projects „AMETYST“) regarding the topic ‘Energy Harvesting in airplane wings’ in collaboration with the aviation industry partner Airbus

- Model construction of the previous converter in CAE with the help of Ansys
- Simulation of magnetostatic conditions for stronger magnet couple
- Simulation of the induction unit
- Calculation of the optimal dimensions of a new conductor based on the simulation results
- Construction of a prototype with a better magnet couple combination
- Testing and confirming the better functionality on Shaker in the laboratory

Scope of technology:

Research, development

Project work in the laboratory for microtechnology at the FH Kempten ***March 2010 – September 2009***

(6 months)

Student

Design of an experimental setup for micro drive units for the measurement of rotation speed, acceleration and torque

- Layout

- Test planning
- Test conduction
- Documentation

Scope of technology:
Research, development

LANGUAGE SKILLS _____

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| German | Mother tongue |
| English | Fluent |