toum conneering
consulting and engineering

Tommy Umbreit,
Graduate Engineer,
Borned in 1984, Married, 2 Sons,
Living in 91207 Lauf an der Pegnitz,
13.25 years of professional experience

WORKING EXPERIENCE IN SHORT

- Creation of test plans based on internal or external requirements
- Experienced in hardware testing
- Experienced in UI software testing
- Experienced in V&V testing and documentation conform to FDA and MDR
- Implementing test strategies (manual and automated)
- Experienced in environmental testing like temperature and climate or vibrations
- Strong understanding of metal and plastic structures, also temperature and strain rate based
- Able to perform data acquisition and analysis to evaluate behaviour of parts
- Identify high risk designs
- Data acquisition/analysis knowledge for data receiving from linear potentiometers, accelerometers, strain gauges, load cells. Able to work with software such as MATLAB, Python, Lab view ect.
- Design of test devices/assemblies to validate requirements or prototypes (done with SolidWorks and Creo/ProE)
- Experienced with agile methods
- Experience with automation technologies for UI testing (Squish) but also physical testing
- Well-founded experience in test development from planning to series production

- FEM knowledge for planning simulation based pre-tests to get better understanding of topics
- Experienced in quality assurance

- Ability to work in intercultural teams (for now Japanese, Chinese, Indians, Poles, Slovaks, French)
- Quality oriented thinking and acting
- Strong troubleshooting skills
- Feel and observe the topics directly and by own hand instead of work behind the desk
- Separate the inputs/variables to get a clear picture – analytical mindset
- Ability to translate technical topics into non-technical language

WORKING EXPERIENCE FULL RANGE

Several parallel projects for OEMs in medical sector from October 2018 – now
Freelance

- Test device planning and CAD construction (Creo/ProE) to load the components according to requirements
- Planning of measurement infrastructure with aim of answering questions to requirements
- Coordination of internal tests
- Coordination of external labs to support our test strategy
- Analysis of data using MATLAB and developing proposals for developers
- Testing of software as well as hardware prototypes
- Test automatization (python scripting) using Squish for UI testing or MATLAB for physical testing
- Facilitating and maintaining of automated UI testing branches in Gitlab
- Documentation of V&V testing conform to FDA and MDR
- Documentation of issues in Jira Issue tracking tool
- Working in agile project environment using Atlassian Jira

CAE/FEM-Specialist at Geely, Remote, February 2022 – June 2022

Position: CAE/FEM Specialist
Field of Work: Development and testing of metal and foam components

- Module construction of complete vehicles and conduct of complete vehicle calculations including the analysis with the help of ANSA/META and LS-Dyna
- Validation of complete vehicle models to crash tests
- Verification and comparison of real crash sensor data to simulation sensor data Automation of evaluation tools using Python
- Optimization and DEOs for different loadcases such as front or small overlap crash
- Evaluation and presentation of results including suggestions for optimization

Several parallel projects for Tier1 suppliers in automobile industry from February 2016 – January 2020
Freelance

- Testing coordinator for mechatronic and plastic components like kinematic roof spoilers (Porsche Panamera, Cayenne and Taycan) and plastic lines for engine applications (BMW model 3, 5 and 7)
- Determination of the test costs according to customer specifications and specifications for all phases of a project
- Coordination of test plans and test costs with the responsible lead engineer and program manager
- Creation of schedules for the tests in cooperation with the project team
- Lead of internal and external component tests according to the test plans
- Analysis of test results, creation and analysis of test reports and development of suggestions for improving results
- Administration and distribution of test reports to the project team and provision of test reports in the program database
- Cooperation with internal and external test laboratories as well as with component suppliers for test activities and test results
- Participation in meetings with the respective program development team and with the customer
- Identification of potential cost savings and ensuring the utilization of the test facilities
- Coordination development wind simulating device for roof spoilers (see appendix)

Toyota Boshoku Europe N.V. Munich Branch October 2015 – December 2015
(2,5 months), Freelance
Toyota Boshoku Europe N.V. Munich Branch May 2013 – July 2015
(27 months), Employee

Position: CAE-Simulation Engineer
Field of Work: Development and testing of plastic components

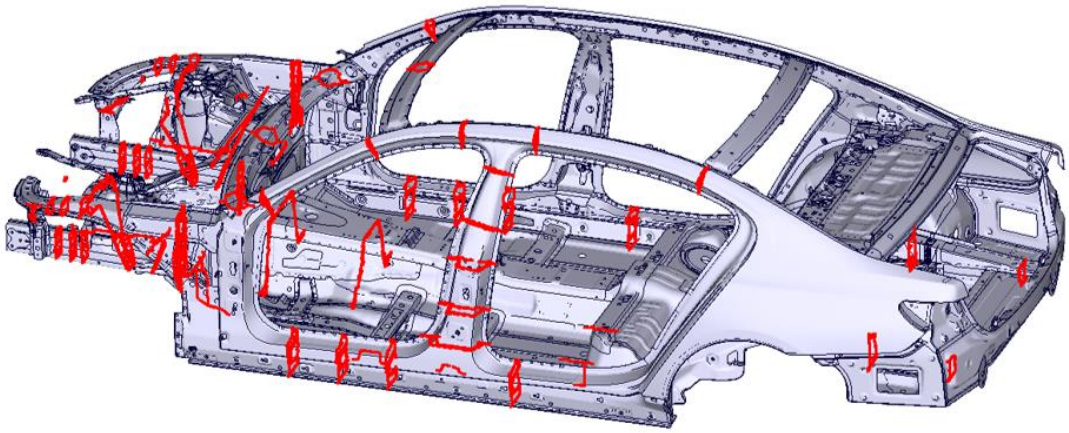
- Responsible for setting up an in-house simulation department at Toyota Boshoku Europe organisation
- FEM and testing topics with regards to side crash of door trims within the Daimler-projects BR453 (Smart) and BR238 (E-class successor). In relation severa topics such as material card development and process optimization of CAE were done
- Building and optimizing CAE-models with Ansa, LS-Dyna, Meta and Animator Organization and supervision of several tests including planning und installation of sensors
- Evaluation of test results and validation of simulation results
- Building up material database and –competency with aacquisition 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 ccalculations

CAE/FEM-Specialist at Tecosim (CAE Supplier), Munich March 2011 – April 2013 *(25 months)*

Position: CAE/FEM Specialist
Field of Work: Development and testing of metal and foam components

Parallel processing and leading 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
- Verification and comparison of real crash sensor data to simulation sensor data 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 test case 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



Definition of different cutting surfaces (red areas) to measure the loads over time for better understanding of impact

ADVANCED TRAININGS ON THE JOB

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 modelling for definition of parameters for crash simulation, test procedures and validation

EDUCATION

October 2005 – March 2011	University of Applied Science Kempten Degree: Diplom-Wirtschaftsingenieur Maschinenbau Focus: Microsystems technology, control engineering, mechatronics, FEM

Diploma thesis in the laboratory for microtechnology at the FH Kempten
November 2010 – March 2011 *(4 months)*

Optimization of an inductive vibration energy converter based on magnetostatic FEMsimulation (BmBF-project „AMETYST“) with topic ‘Energy Harvesting in airplane wings’. This project was 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, analysing and confirming the better functionality on a shaker in the laboratory

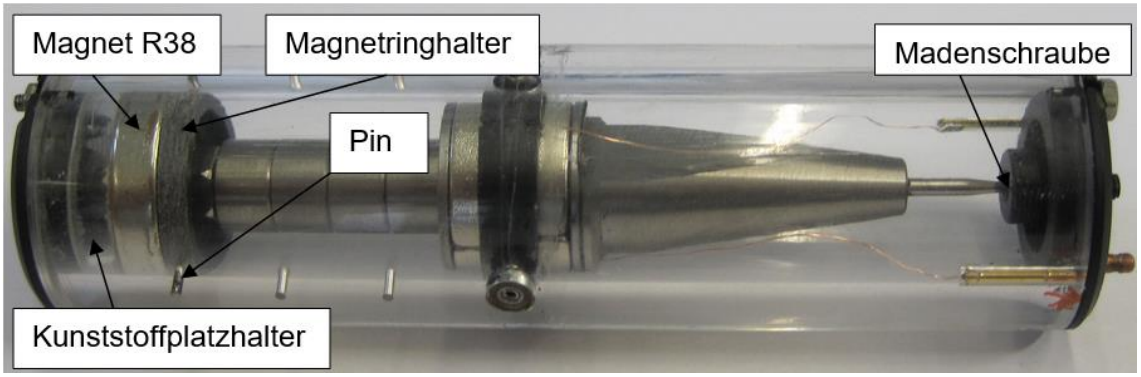


Figure 1: inductive vibration energy converter with magnetic spring (less mechanic friction)

Project work during study in the laboratory for microtechnology at FH Kempten
March 2010 – September 2009 *(6 months)*

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

- Layout
- Test planning
- Test conduction
- Documentation

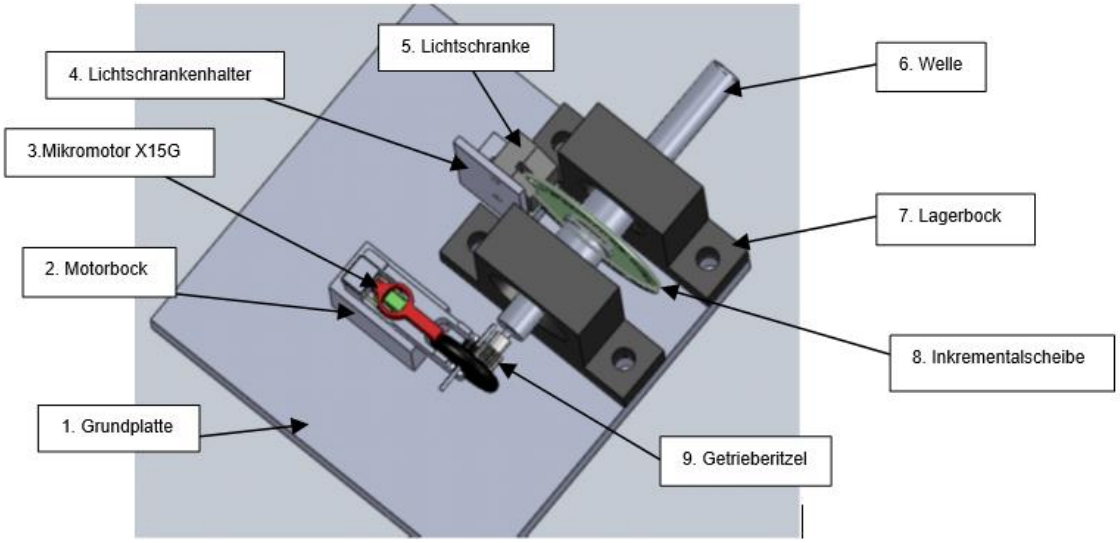


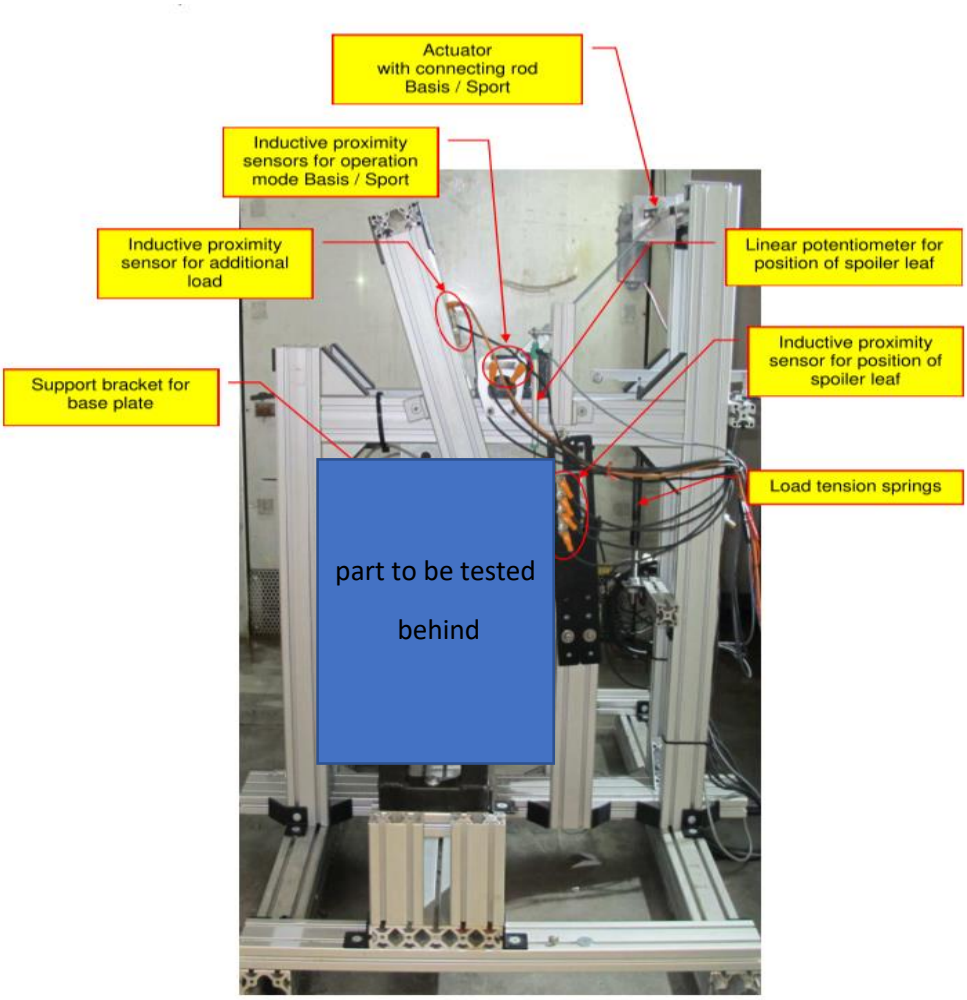
Figure 2: experimental setup for micro drive units

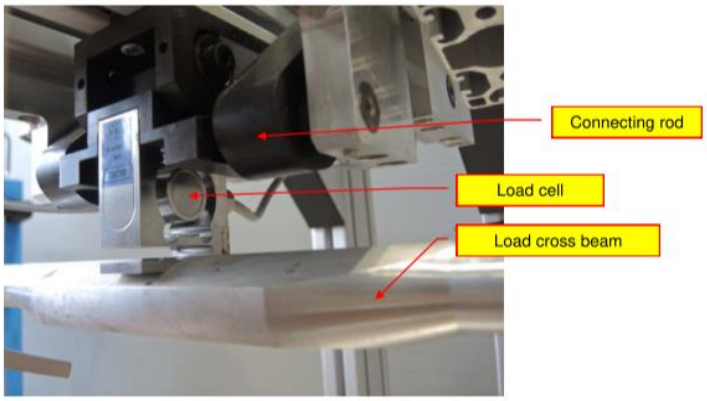
LANGUAGE SKILLS

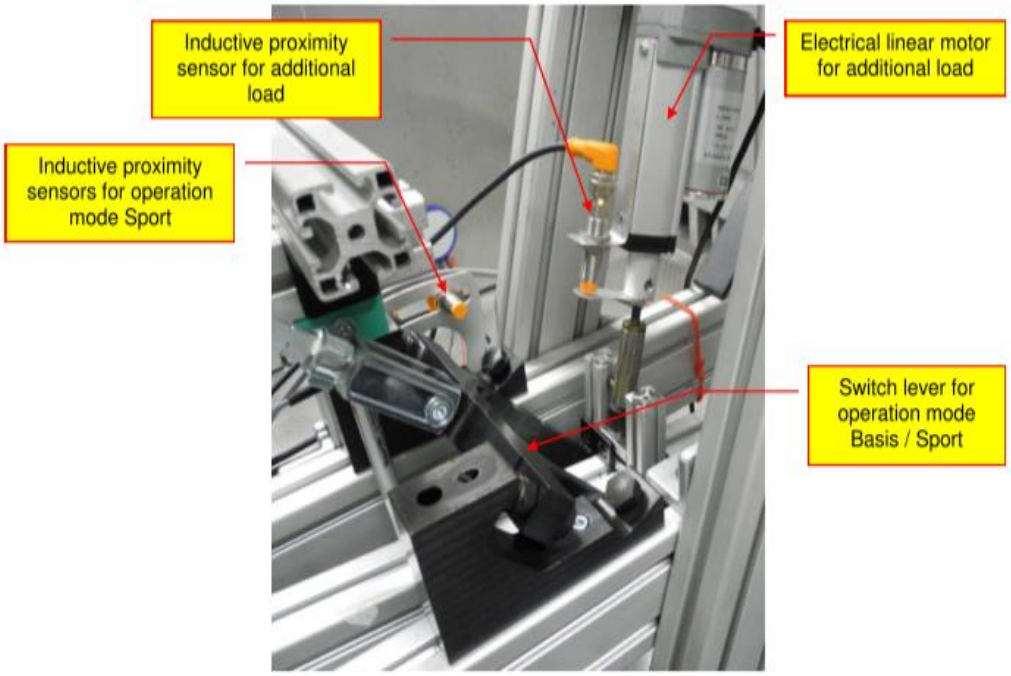
German	Mother tongue
English	Fluent

Appendix:

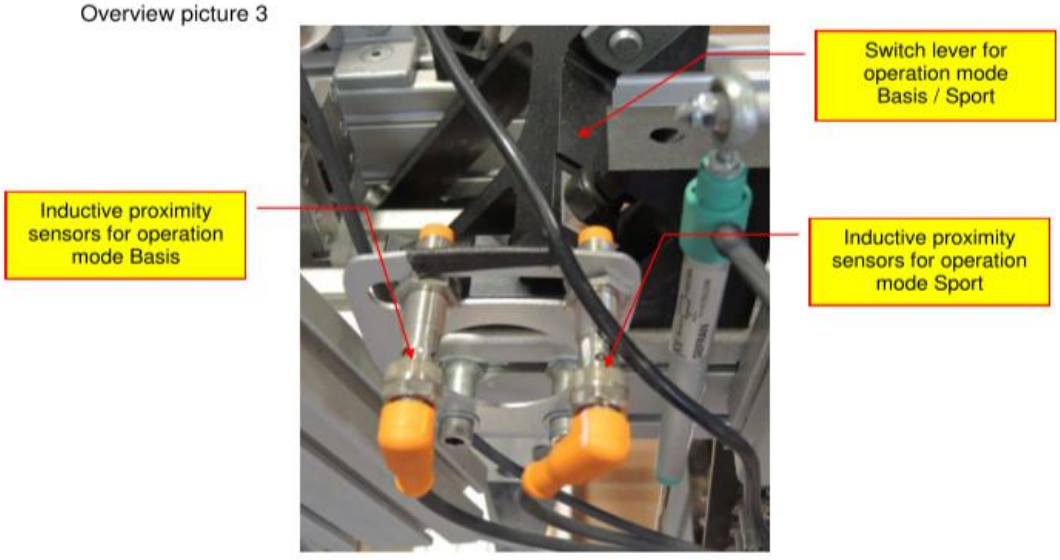
Development coordination of test bench for later use to simulate wind loads on exterior parts of automobile.



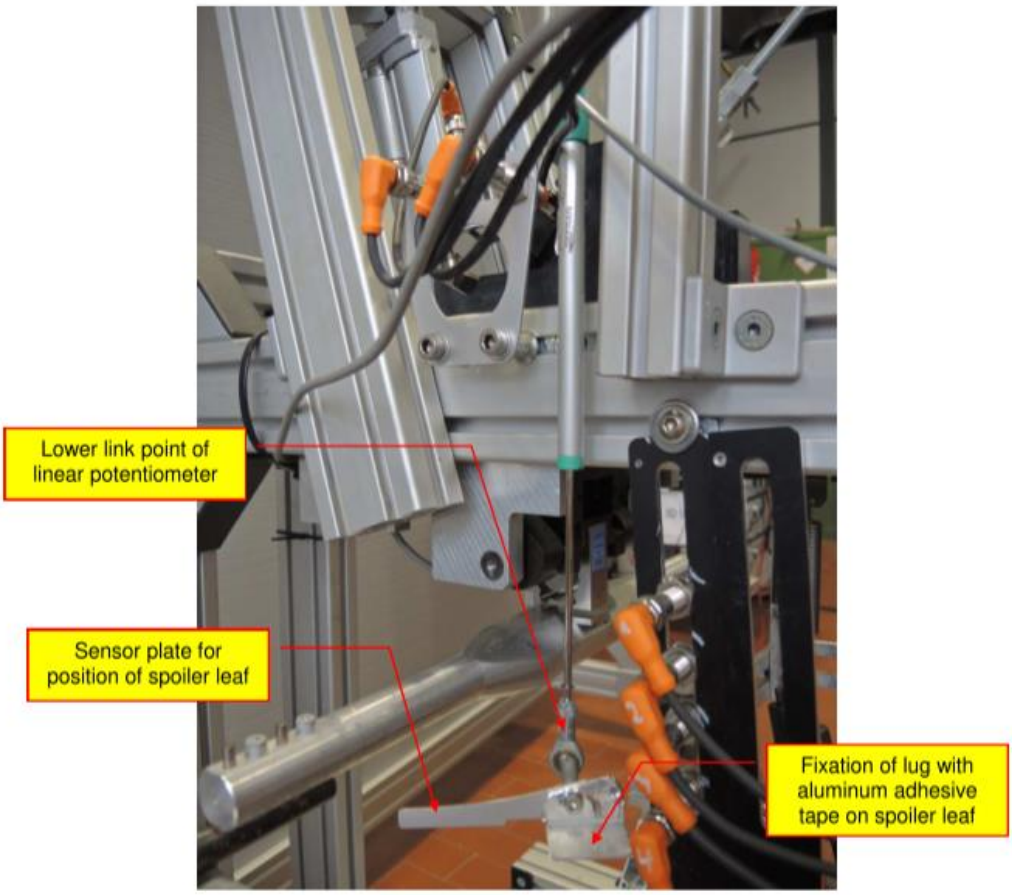




Overview picture 3



Overview picture 4



Overview picture 5