

Mechanical engineer and expert computational analyst with eight years of experience in a broad range of industries. Dual US-Australian citizen with international experience in the US, Australia and Germany. Native English, fluent in German.

## Experience

Dec 2015 – Present

**Orange Engineering GmbH**

Kiel, Germany

### *Computational Analysis Specialist*

- Optimization of internal fluid flows using ANSYS-Fluent
- Design and analysis of plastics equipment with SolidWorks
- Design and analysis of locomotive structure using Inventor and FEMAP/NX-NASTRAN
- Fatigue analysis of welded steel and aluminum structure using CAE-LIMIT
- Analysis according to several European standards including DIN EN 12663 and DVS 1612/1608
- Manual calculation of structural details such as bolts and bearing pads
- Development of Python and Excel VBA tools to streamline analysis and locomotive data management
- Hands-on MIG welding experience

Aug 2009 – Aug 2014

**Strand7 Software**

Sydney, Australia

### *Stress Analyst*

- FEA consulting, software development and customer support
- Detailed working knowledge of all solution types, including linear, nonlinear, static, dynamic, buckling, steady-state and transient thermal, natural frequency, spectral and harmonic response and fatigue
- Led small teams of analysts in large consulting jobs from the mining, civil/structural, oil and gas and heavy industries, including analysis cost estimation and professional quotation
- Development and management of scalable automated documentation deployment systems  
<http://strand7.com/webnotes>

May 2007 – Feb 2009

**The Boeing Company – Phantom Works**

Seattle, WA

### *Advanced Structural Analyst Level II*

- Participation in 25 commercial and military projects, which led to three US patents (one pending)
- Nonlinear FEA including material characterization, interpretation of strain and correlation of test results with ABAQUS, LS-Dyna, Hypermesh/Hyperworks, NASTRAN/PATRAN and CATIA V5
- Aircraft and rotorcraft crashworthiness analysis with explicit dynamics and composite crush
- Experience with composites: co-cured, bonded, stitched (design, manufacturing and testing)
- Optimization of aircraft and ground-vehicle structure for weight and strength with Optistruct and LS-OPT
- Use of CATIA V5 for technical drawing (2D and 3D) for aircraft and ground-vehicle design
- Organization of lab tests, including test rig design, strain gauge placement and test plans

#### *USPTO Publication*

[US9001121 B2](#)

[US8434293 B2](#)

[US20110039057 A1](#)

#### *Title*

Method and apparatus for generating data for three-dimensional models from x-rays

High stiffness shape memory alloy actuated aerostructure

Laminated composite rod and fabrication method (pending)

Apr – Jun 2006

**The Boeing Company – Phantom Works**

Seattle, WA

***Mechanical Engineering Internship***

- Development of whole-aircraft 3D relational design data sets with CATIA V5 and ENOVIA PLM
- Cooperated with experienced designers, manufacturers and analysts to develop optimized data sets including multi-resolution relational 3D models

Jan – Jun 2005

**Honda R&D Americas – Motorcycle Division**

Marysville, OH

***Mechanical Engineering Internship***

- Development and optimization of high-volume plastic and sheet metal ATV parts including cost analysis and logistics
- Investigation and documentation of test damage to plastic and metal parts
- Creation of 3D models and 2D drawings in CATIA V4 and V5
- Creation of design tools based on FEA results to simplify future performance predictions

Apr – Aug 2003

**TASUS Corporation**

Bloomington, IN

***Plastic Injection Molding Technician***

- Responsible for the production of plastic injection molded parts and value-added steps on the factory floor
- Trimming/finishing, quality assurance and light mold maintenance
- Produced parts for Honda, Suzuki, Ford, GM, Toyota and BMW
- Experience with high-volume automated manufacturing systems (robots, image analysis, conveyor systems)

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**Education**

2002 – 2006

**Purdue University**

West Lafayette, IN

- BS Mechanical Engineering – GPA 3.77 (94%) <http://kkava.com/CV.pdf>
- Senior design submarine project <http://kkava.com/sub>
- Research and development of discrete element methods (DEM) with arbitrary boundaries <http://kkava.com/dem>
- Focus on numerical methods and simulation <http://kkava.com/st>

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**Computer Experience**

- CAD: CATIA V5<sup>+</sup> (and V4), Autodesk Inventor<sup>+</sup>, ENOVIA PLM, Mastercam
- Math: MATLAB<sup>+</sup>, LabView, Mathematica
- FEA: FEMAP/NX-NASTRAN<sup>+</sup>, ABAQUS<sup>+</sup>, Strand7<sup>+</sup>, LS-Dyna, Optistruct, ANSYS, Fluent<sup>+</sup>, PATRAN/NASTRAN
- Programming: C/C++, Java<sup>+</sup>, VBA<sup>+</sup>, HTML/CSS<sup>+</sup>, Python (and GUI)<sup>+</sup>, PHP<sup>+</sup>, Delphi, Javascript
- 3D Printing: Repetier-Host, Slic3r, Cura, IdeaMaker, in PP, PET and PLA materials, Prusa i3x
- General: PC<sup>+</sup>, MS-Office<sup>+</sup>, Linux/Unix, Mac, hardware, networking, printing

<sup>+</sup> Strongest skills