

Johan Iraeus, PhD, MSc

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SUMMARY

Senior CAE engineer specialized in explicit finite element simulations, with main focus on crashworthiness. Wide knowledge of computer aided design within the automotive, construction and offshore sectors. Deep interest in and knowledge to develop simulation methods to find new effective methods, especially in the areas of optimization and stochastic. Always wants to exceed the customer's expectation. Have a positive attitude and a distinct sense of nurturing relationships with both customers and employees.

HIGHLIGHTS

- ✓ PhD in Surgery and Perioperative Sciences at Umeå University.
- ✓ Managed several multi million (SEK) projects building computer finite element models of passenger cars. The results were on time and with state-of-the-art quality, despite lack of resources.
- ✓ Responsible for all CAE development of a high strength non-corrosive frontal bumper in a research project aiming at reducing weight by 25%, while maintaining cost and all technical specifications. Despite of very complex requirements the project was a success, much due to extensive optimization using computer simulations.

EDUCATION

- 1993 – 1997 **Chalmers University of Technology**,
Masters in Civil Engineering, Focus on Applied Mechanics
- 2002 – 2003 **University of Gothenburg**,
1 year Psychology and Work and Organization Psychology
- 2010 – 2015 **Umeå University**,
PhD in Surgery and Perioperative Sciences

PROFESSIONAL EXPERIENCE

- 1998 – 2000 **Caran Automotive**
Worked as junior CAE engineer performing mainly finite element analyses. Partly worked with computer system management and software development.
- ✓ Performed motion analysis and mooring design for several off shore structures, using computer simulations.
 - ✓ Performed frontal, side and rollover crash simulations in the development of the Saab 9-3 MY03.
- 2000 – 2012 **Epsilon**
Worked as mentor for younger CAE engineers and project leader for in-house projects. Worked for three years as group manager. Technical specialist within structural and interior crashworthiness, with special interest in human FE modeling as well as modelling of thermoplastics
- ✓ Responsible for CAE activities and in most cases project leader in several crash safety related research projects funded by Swedish authorities, e.g. The Swedish Road Administration and Vinnova (Swedish Governmental Agency for Innovation Systems).
 - ✓ Responsible for CAE activities in several crashworthiness pre-development projects at Saab Automobile.
 - ✓ Worked as responsible senior CAE engineer towards many passenger car OEMs, e.g. Autoliv, Visteon, Meridian, Delphi and SAPA. Examples of analyzed products are; bumper beams, seat

structures, steering columns and steering beams.

- ✓ Performed simulation method development, mainly in the areas of low speed impact simulations, simulation of thermoplastics under high strain rates, and simulation of interior safety focusing on human FE models.
- ✓ Implemented shock and vibration simulation methods in other disciplines, e.g. nuclear, telecom, offshore, packaging, and medicine. Examples of customers are Vattenfall, Ericsson, Tetra Pack and Astra.

2010 –2015 **Umeå University**

- ✓ Research focus on injury mechanisms in frontal impacts in passenger cars, with special attention to oblique impacts. This was carried out by combining numerical FE simulations with database analysis of real life crash data.

2013 – **ÅF**

- ✓ Epsilon was merged with ÅF as per Jan 1:st 2013.

PROFESSIONAL PUBLICATIONS

- 2015 Iraeus J., *“Stochastic finite element simulations of real life frontal crashes: With emphasis on chest injury mechanisms in near-side oblique loading conditions”*, PhD Dissertation (Comprehensive summary), 2015, Umeå University. <http://diva-portal.org/smash/record.jsf?pid=diva2:811579> (Accessed 15-09-24)
- 2015 Iraeus J, Lindquist M. *“Pulse shape analysis and data reduction of real life crashes with modern passenger cars.”* IJCR. 2015; DOI:10.1080/13588265.2015.1057005
- 2014 Iraeus J, Lindquist M. *“Influence of vehicle kinematic components on chest injury in frontal-offset impacts.”* TIP. 2014;15(sup1):S88-S95
- 2014 Iraeus J, Lindquist M. *“Analysis of delta velocity and pdof by means of collision partner and structural involvement in real life crash pulses with modern passenger cars.”* TIP. 2014;15(1):56-65
- 2013 Iraeus J, Lindquist M, Wistrand S, Sibgård E, Pipkorn B. *“Evaluation of chest injury mechanisms in nearside oblique frontal impacts.”* Paper presented at: The 57th ann AAAM Scientific Conference; September 22-25, 2013; Québec City, Canada
- 2010 Lanner D., Halldin P., Iraeus J., Holmqvist K., Mroz K., Pipkorn B., Jakobsson L., Backlund M., Bolte J. H., Kleiven S., *“Evaluation of finite element human body models in lateral padded pendulum impacts to the shoulder”*, IJCR, Volume 15, Issue 2 April 2010 , pages 125 - 142
- 2010 Gavelin A., Iraeus J., Lindquist M., Oldenburg M., *“Evaluation of Finite Element Models of Seat Structures with Integrated Safety Belts using Full Scale Experiments”*, IJCR, Volume 15, Issue 3 June 2010 , pages 265 – 280

AWARDS

- 2008 First runner up in Swedish Technology and Design competition for younger consultants in areas of architect, technology, or industry.
- 1999 Awarded the John Ericsson medallion for outstanding scholarship for the degree of masters of science in engineering