

Katarzyna A.Rawska, M.S.

Curriculum vitae

Senior Lab Specialist

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<https://scholar.google.com/citations?hl=en&user=P2YbZGYAAAAJ>

Education

MS+BS, Mechanical Engineering

July 2011

Wroclaw University of Technology (Poland)

Thesis: Passive safety systems for side crashes. Existing solutions, further development.

Work Experience

Lab Specialist Senior

2019-Present

Center for Applied Biomechanics

University of Virginia

- Developing, designing, and conducting research projects and experiments focused on occupant and pedestrian protection, crashworthiness
- Conducting analysis of data, interpreting, and implementing research methodology based on outcome of analysis
- Overseeing day-to-day operation of project, and supervising exempt and non-exempt research and support personnel
- Performing MADYMO-LS-Dyna Coupling simulations and assessing injury risk of pedestrians struck by autonomous vehicle
- Performing FE simulations to evaluate occupant safety in autonomous driving system environment

Research Specialist - Computation

2014-2019

Center for Applied Biomechanics

University of Virginia

- Developing and simulating multi-body models of the human body and anthropomorphic test devices for injury prediction during impact events
- Performing validation of the MADYMO facet pedestrian models
- Performing MADYMO simulations that include model set-up, troubleshooting, post-processing of result
- Performing Madymo-LS-Dyna Coupling simulations to evaluate pedestrian safety with non-standard vehicle front-end

- Support Engineer & Software Tester** **2011-2014**
 Safety Engineering Research S.C.
 Warsaw, Poland
- Developing a multi body model of the child dummies (Q1.5, Q3 and, Q10) based on scaling procedure and calibrating its response with respect to available data
 - Developing selected body parts of the multi-body THOR Mod-Kit Model, simulating component tests based on available certification setups
 - Rebuilding/adjusting full test applications for model validation. Signal processing Conducting MADYMO software testing
 - "Driver Safety Project" (Volvo Trucks, France) – conducting modifications to the heavy truck design (using MADYMO simulations) for occupant injury prediction during impact events
- Production Assistant** **2011-2011**
 Autoliv Sp. z o. o.
 Olawa, Poland
- Preparing specifications for airbag packaging process (layout and templates)
 - Supporting Spare Parts department
- Administration Assistant** **2011-2011**
 Autoliv Sp. z o. o.
 Olawa, Poland
- Developing personnel database, archiving documents
- Production and Logistic Assistant** **2010-2010**
 SCA Packaging Poland Sp. z o. o.
 Olawa, Poland
- Tracking production statistics and reporting production indicators
 - Updating transport and production statistics
- Laboratory Assistant** **2007-2007**
 Autoliv Sp. z o. o.
 Olawa, Poland
- Testing of airbag components and finished products during Production Part Approval Process
 - Assisting with airbag threads strength tests
- Quality Controller** **2006-2006**
 Autoliv Sp. z o. o.
 Olawa, Poland
- Checking final product quality (airbags) according to product technical specification

Research Interests

- Injury biomechanics, esp. pedestrian injury biomechanics and prevention crash simulation, impact analysis
- Dynamics of Multi Body Systems (MADYMO modelling) and Finite Element modeling, esp. coupling between Madymo and LS-Dyna.

- Automobile safety system design and assessment
- Occupant kinematics and injury mechanisms in automobile crashes

Computer Skills

MADYMO (multibody software), Madymo-LS-Dyna Coupling, LS-PrePost, LS-Dyna, Matlab, Knowledge of Solidworks and HyperWorks, Vicon, Microsoft Office

Certifications & Courses

- 7th International Advanced Course on Injury Biomechanics, Madrid, Spain, 2019
- Certificate of Achievement LS-dyna introductory Training
- Certificate of Achievement Introduction to Ls-PrePost 4.0
- ISTQB - Foundation Level Certified Tester

Presentations

1. AAAM (The Association For The Advancement Of Automotive Medicine), 15-18 October 2019 Madrid, Spain. “Submarining sensitivity across varied anthropometry in autonomous driving system environment.” **Rawska, K.**, Gepner, B., Kulkarni, S., Chastain, K., Zhu, J., Richardson, Perez-Rapela, D., Forman, J., Kerrigan, J.
2. AAAM (The Association For The Advancement Of Automotive Medicine), 7-10 October 2018 Nashville, USA, “Overview of a comprehensive evaluation for the assessment of panoramic sunroof impact characteristics for ejection mitigation.” **Rawska, K.**, Gepner, B., Shaw G., Kerrigan, J.
3. IRCOBI, 12-14 September 2018, Athens, Greece. “Basic assessment of the injury risk to pedestrians struck by non-standard, autonomous vehicle.” **Rawska, K.**, Gepner, B., Kerrigan, J.
4. Warrior Injury Assessment Manikin (WIAMan) NATO HFM Panel, London, UK, June 6th, 2016 “Local vs. Global Motion in Whole-body Under blast Testing”. Spratley, E.M., **Rawska, K.**, Demetropoulos C.K., Merkle A.C., Salazar R.S.
5. IRCOBI (International Research Council on Biomechanics of Injury), 9-11 September 2015, Lyon, France, “Evaluation of the Biofidelity of Multibody Paediatric Human Models under Component-level, Blunt Impact and Belt Loading Conditions” **Rawska, K.**, T Kim, V Bollapragada, B Nie, J Crandall, T Daniel.
6. 118th ICB (International Centre of Biocybernetics) Seminar on Biomechanics of Impact/Biomechanics of Injury, 19-21 September 2011, Warsaw, Poland

Journal Publications

1. **Rawska, K.**, Gepner, B., Kerrigan, J. (2020) Submarining sensitivity across varied seat

configurations in autonomous driving system environment. *Traffic and Injury Prevention*, DOI: 10.1080/15389588.2020.1791324 (accepted June 2020) (JCR – **Q3**).

2. **Rawska, K.**, Gepner, B., Kulkarni, S., Chastain, K., Zhu, J., Richardson, Perez-Rapela, D., Forman, J., Kerrigan, J. (2019) Submarining sensitivity across varied anthropometry in autonomous driving system environment. *Traffic and Injury Prevention*, 2019;20(sup2):123. (JCR – **Q3**)
3. **Rawska, K.**, Gepner, B., Shaw G., Kerrigan, J. (2018), Overview of a comprehensive evaluation for the assessment of panoramic sunroof impact characteristics for ejection mitigation. *Traffic and Injury Prevention*, 2018;19(sup2):96. (JCR – **Q3**)

Peer-Reviewed Conference proceedings

1. Gepner, B., **Rawska, K.**, Richardson, R., Kulkarni, S., Chastain, K., Zhu, J., Forman, J., Kerrigan, J. (2019) Challenges for Occupant Safety in Highly Automated Vehicles across Various Anthropometries. *Proc. of the 2019 Enhanced Safety of Vehicle (ESV) Conference*, Netherlands.
2. Kerrigan, J.R., **Rawska, K.**, Gepner B., Forman, J., Chastain, K., Kulkarni, S., Zhu, J., Richardson, R. (2019) Preventing Submarining for Reclined Occupants of Autonomous Vehicles. *Proc. of the JSAE Annual Congress*, Yokohama, Japan.
3. **Rawska, K.**, Gepner, B., Kerrigan, J. (2018). Basic assessment of the injury risk to pedestrians struck by non-standard, autonomous vehicle. *Proc. of the IRCOBI Conference on the Biomechanics of Impact*, Athens Greece.
4. **Rawska, K.**, Kim, T., Bollapragada, V., Nie, B., Crandall, J., Daniel, T. (2015) Evaluation of the Biofidelity of Multibody Paediatric Human Models under Component-level, Blunt Impact and Belt Loading Conditions. *Proc. of the IRCOBI Conference on the Biomechanics of Impact*, Lyon France.

Journal Activities

- Computer Methods in Biomechanics and Biomedical Engineering, Reviewer, 2020-Present
- Advances in Mechanical Engineering, Reviewer, 2020-Present