

MohammadReza Seyedi

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"If I have seen further than others, it is by standing upon the shoulders of giants."
Sir Isaac Newton

EDUCATION

Post Doctoral Scholar	<i>May 2020-Present</i>
Florida State University, FAMU-FSU College of Engineering	
Ph.D. in Civil Engineering	<i>Aug 2016 - May 2020</i>
Florida State University, FAMU-FSU College of Engineering	GPA: 3.9
M.En. in Civil Engineering	<i>Aug 2016 - Dec 2018</i>
Florida State University	GPA: 3.8
M.Sc. in Automotive Engineering	<i>Aug 2010 - Jan 2013</i>
University of Science and Technology of Tehran	GPA: 3.4
B.Sc. in Mechanical Engineering (Solid Mechanics)	<i>Aug 2006 - Aug 2010</i>
Bahonar University of Kerman	GPA: 3.6

SKILLS

Programming	MATLAB (Scripts & Simulink), Python, R, VB
CAE Software	Finite Element (LS-Dyna, ANSYS, HyperMesh, ABAQUS)
CAE Software	Dynamic Analysis (ADAMS, PC-Crash, CarSim)
CAD Software	CATIA, SolidWork
Languages	English , Farsi

RESEARCH PROJECTS

Research on computational mechanics with application on emerging transportation application:

- Study the safety of autonomous shuttle bus regarding its interaction with road users and identify the high-risk situations
- Study the advanced driving assistant systems algorithms from vehicle-performance, human-machine interface aspects
- Analyze the performance of the active safety systems using computer programming and field data analysis

Research on human kinematics, biomechanics, and numerical simulations:

- Develop the computational FE model of the bus to study the structural response during different impact conditions
- Study the occupant injuries and performance of passive safety systems using numerical models
- Develop the dynamic model of the bus using multibody dynamics approach to conduct the accident reconstruction and investigate the vehicle dynamic characteristics
- Develop the numerical simulation of concrete pile impact test
- Study the characteristics of the composite material and its failure mechanism using theoretical and numerical methods

GRANTS

- Sungmoon Jung (PI), MohammadReza Seyedi (Co-PI), Safety Assessment of Cutaway Buses Using Numerical, Experimental, and Statistical Methods , Florida Department of Transportation, **\$520,000**, 2019-2021, (Contribution: propose research questions and solving method, writing the draft, and develop the budget).
- Sungmoon Jung (PI), MohammadReza Seyedi (Co-PI), Safety Assessment of the Interaction Between the Autonomous Shuttle Bus and Vulnerable Road Users, Transportation Research Board, **\$100,000**, 2020, (Contribution: led the proposal by identifying the research questions and solving method, find industry collaborators, writing the draft, and develop the budget).

WORK EXPERIENCES

Industry

- Designed/prepared technical drawings, strength analysis, and dynamic assessment of mechanical components of amusement rides based on the AS3533 standard code(Tehran, 2013-2016).
- Worked as a mechanical engineer in the Paya Boresh Company using mostly CAD software for designing 3D models of mechanical components for roll and bending machines (Tehran, 2012-2013).

Academia

- Supervised grad students and developed a Direct Individual Study course for finite element method (Florida State University, Fall 2020)
- Teacher assistant for **structural dynamics** course: teaching the natural frequency for multi-degree of freedom systems (Florida State University, Fall 2019)
- Instructor of theory of **vehicle dynamics** and **suspension system** undergraduate courses for two semesters (University of Applied Science and Technology, Tehran, 2014-2015)
- Teaching assistant for the **dynamics** course for one semester (Bahonar University, 2010)

PUBLICATIONS AND SCHOLARLY WORKS

Refereed Journal Papers

- Seyedi, MohammadReza, Sungmoon Jung, Arda Vanli. "Probability risk assessment of Pedestrian-Autonomous Shuttle Bus Conflict and Develop Prevention Strategies" , 2020, (In Preparation).
- Seyedi MohammadReza, Sungmoon Jung, Arda Vanli, MohammadReza Koloushani. "Safety Performance Assessment of Collision Avoidance Systems Based on Real-World Crash Simulations" *Transportation Research Part C: Emerging Technologies*, 2020, (Under Review).
- Seyedi, MohammadReza, Sungmoon Jung, Jerzy Wekezer. "Structural and Occupant Safety Assessment of Bus Rollover Crashes: An Integration of Dynamic and Finite Element Simulation Methods" *International Journal of Crashworthiness* , 1-16. (2020).
- Seyedi, MohammadReza, Abolfazl Khalkhali. "A Study of Multi-Objective Crashworthiness Optimization of the Thin-Walled Composite Tube Under an Axial Load" *Vehicles*, 2020, 2, 438-452.

- Seyedi, MohammadReza, Sungmoon Jung, Grzegorz Dolzyk, and Jerzy Wekezer. "Experimental assessment of vehicle performance and injury risk for cutaway buses using tilt table and modified dolly rollover tests." *Accident Analysis and Prevention*. 132 (2019): 105287.
- Seyedi, MohammadReza, Sungmoon Jung, Jerzy Wekezer, Jason R. Kerrigan, and Bronislaw Gepner. "Rollover crashworthiness analyses—an overview and state of the art." *International Journal of Crashworthiness* .(2019): 1-23.
- Seyedi, MohammadReza, Sungmoon Jung,. "Numerical Injury Risk Assessment in Rollover Crashes of Cutaway Buses Using a Tilt Table Test." *Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering*. (2019)

Conference Papers

- Seyedi, MohammadReza, Sungmoon Jung and Arda Vanli. "Characteristics Analysis of The Crash Safety for Transit Buses Using Surrogate Models." **Engineering Mechanics Institute Conference and Probabilistic Mechanics Reliability** (Postponed to 2021)
- Seyedi, Mohammad Reza, Sungmoon Jung, and Jerzy Wekezer. "Characteristic Analysis of Modified Dolly Test: A Sensitivity Study of Initial Conditions on Rollover Outcomes." In *Model Validation and Uncertainty Quantification, Volume 3*, pp. 107-115. Springer, Cham, (2019).
- Seyedi, MohammadReza, Grzegorz Dolzyk, Sungmoon Jung, and Jerzy Wekezer. "Skin Performance in the Rollover Crashworthiness Analysis of Cutaway Bus." In *Special Topics in Structural Dynamics, Volume 5*, pp. 127-136. Springer, Cham, (2018).
- Seyedi, MohammadReza, Grzegorz Dolzyk, Sungmoon Jung, and Jerzy Wekezer. "Occupant Response in Rollover Crashworthiness Assessment of Cutaway Bus." **15th International LS-DYNA ® Users Conference** (2018)
- Seyedi, MohammadReza, Grzegorz Dolzyk, Sungmoon Jung, and Jerzy Wekezer. "Experimental and Numerical Analysis of Injury Risk in Cutaway Bus Side Impact Test." **ASME Verification and Validation conference Proceeding (V&V)**, Las Vegas, NV (2017).

Invited Talks, Lectures, and Technical Reports

- Rollover safety evaluation of the bus, **Center for Applied Biomechanics, University of Virginia**, Charlottesville, VA, 2019.
- Vehicle testing and performance based on specification/standards, Reza Seyedi, Jeffrey Siervogel, **Center for Urban Transportation (CUTR) Transit Standard Working Group**, Tampa, FL, Nov 2018.
- Lecturer for the application of the CATIA software in vehicle modeling, pre-conference class, **National Symposium of Developing the Industrial Vehicle Components**, Semnan, Iran, 2012.
- Jung, S., Wekezer, J., Siervogel, J., Seyedi, MR., Dolzyk, G., Crashworthiness Evaluation of Paratransit Buses, Project Year 2016-2019, **Florida Department of Transportation**

Professional Service

- **Review for Journals:** Traffic Injury Prevention (Taylor & Francis); Vehicles (MDPI); Materials (MDPI); Environmental Research and Public Health (MDPI);

HONORS & AWARDS

CEE Future Faculty Award FAMU-FSU College of Engineering
Selected applicant for future faculty position by the CEE graduate committee \$500 Grant 2020

5 Minute Research Postdoc Competition Florida State University
Selected among 10 finalist who presented their research to public audience \$100 Grant 2020

CEE Research Excellence Award FAMU-FSU College of Engineering
Selected as the top three students by the CEE Faculty committee for a best researcher and awarded with \$1000 Grant 2019

Certificate of Approval LSTC Livermore Software Technology Corporation
Advanced training on "Airbag Folding and Morphing Using LS-PrePost" 2018

3-Minutes Thesis (Finalist) Florida State University-2017
Annual competition held in over 200 universities to explain the P.h.D. thesis to public audience

Certificate of Approval National Training Accreditation Awarded
Advanced Training on "Sheet Metal Press and Calibration" 2012

OUTREACH

Volunteer Judge
For The Capital Regional Science and Engineering Fair 2020

FAMU-FSU Open House Day
Featured our research for the public and students from FAMU the top public historically black college in the nation. 2018

Volunteer Judge
For 4-H STEM competition held by more than 100 public universities across the US 2018

PROFESSIONAL MEMBERSHIPS

Professional Member
Society of Automotive Engineering 2019- present

Professional Member
American Society of Mechanical Engineering 2017- present

President
Students Society of Mechanical Engineering in Bahonar Univeristy Kerman, 2008-2010

RESEARCH INTERESTS

Structural Mechanics and Dynamics
Risk Assessment
Computational Analysis
Machine Learning
Driving Simulation

Autonomous Vehicle
Transportation Safety and Human Factors
FE Method
Data Analysis
Advanced Driving Assistant Systems