

Exponent®
Engineering & Scientific Consulting

Adam Novotny, Ph.D.

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Professional Profile

Dr. Novotny has a multidisciplinary background conducting research that considers biomedical engineering, mechanical engineering, and human factors to address issues related to transportation safety. At Exponent, Dr. Novotny addresses issues involving the biomechanics of human injury and analyzes the injury mechanisms associated with pathologies resulting from motor vehicle collisions, interactions involving consumer products, and premises liability events. He has degrees in both biomedical engineering and mechanical engineering.

Prior to joining Exponent, Dr. Novotny worked as a research associate at the Virginia Tech Transportation Institute, leading and assisting with a number of research studies focused on improving transportation safety. He has extensive experience conducting human subjects testing, using inertial motion units (IMUs), and analyzing large-scale datasets. Dr. Novotny's doctoral work focused on understanding the interaction between electric scooter technology, road infrastructure, and human factors in order to provide policy, design, and training recommendations to reduce e-scooter related crashes and injuries.

Academic Credentials & Professional Honors

Ph.D., Biomedical Engineering, Virginia Polytechnic Institute and State Univ, 2022

B.S., Mechanical Engineering, The College of New Jersey, 2018

Graduate Certificate, Human Factors in Transportation Safety, Virginia Tech, 2019

Outstanding Student of the Year Award, University Transportation Centers, 2021

First Place Award, Enhanced Safety of Vehicles Student Safety Technology Design Competition, 2019

Pratt Fellowship, Virginia Tech, 2018 – 2019

National Merit Scholarship, The College of New Jersey, 2014-2018

Prior Experience

Research Associate, Virginia Tech Transportation Institute, 2022 – 2023

Graduate Research Assistant, Virginia Tech, 2018 - 2021

Undergraduate Research Assistant, The College of New Jersey, 2017 – 2018

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Professional Affiliations

American Society of Mechanical Engineers (member)

Biomedical Engineering Society (member)

Phi Kappa Phi (member)

Society for Automotive Engineers (member)

Publications

Novotny, A. J., Bloomquist, E. T., Basantis, A. R., Rossi-Alvarez, A. I., Riexinger, L. E., Greatbatch, R. L., Haus, S. H., & Doerzaph, Z. R. (2022). Concept Development of the Novel Pre Rear-End Positioning and Risk Extenuation System (PREPARES). International Journal of Intelligent Transportation Systems Research, 20, 805-817

White, E., Guo, F., Han, S., Mollenhauer, M., Broaddus, A., Sweeney, T., Robinson, S., Novotny, A., & Buehler, R. (2023). What Factors Contribute to E-Scooter Crashes: A First Look Using a Naturalistic Riding Approach. Journal of Safety Research.

Grega, L., Novotny, A., Stabile, C., Taylor, M. L., Daghlian, C. P., & Osborn, J. M. (2018). Aerodynamics of Fossil Pollen: Implications for Understanding Pollination Biology in Extinct Plants. In Transformative Paleobotany (pp. 253-269). Academic Press.

Presentations

Novotny, A. J., Mollenhauer, M., White, E., Robinson, S., & Doerzaph, Z. R. E-Scooter Design: Performance and Safety Evaluation. Oral presentation, SBES Symposium, Winston-Salem, NC, 2022.

Novotny, A. J., Mollenhauer, M., White, E., Robinson, S., & Doerzaph, Z. R. E-Scooter Safety Assessment and Campus Deployment Planning. Lightning talk, SBES Symposium, Virtual Meeting, 2021.

Novotny, A. J., Valente, J., & Herbers, E. Improving Transportation Environments for Vulnerable Road Users. Lightning talk, Smart City Challenge, Virtual Meeting, 2021.

Novotny, A. J., Mollenhauer, M., White, E., Robinson, S., & Doerzaph, Z. R. E-Scooter Design: Safety Measures for Next Generation Scooter. Lightning talk, SBES Symposium, Virtual Meeting, 2020.

Novotny, A. J., Bloomquist, E. T., Basantis, A. R., Rossi-Alvarez, A. I., Riexinger, L. E., Greatbatch, R. L., Haus, S. H., & Doerzaph, Z. R. Development of the Pre Rear-End Positioning and Risk Extenuation System (PREPARES). Oral presentation, Fast-Zero Conference, Blacksburg, VA, 2019.

Novotny, A. J., Bloomquist, E. T., Basantis, A. R., Rossi-Alvarez, A. I., Riexinger, L. E., Greatbatch, R. L., Haus, S. H., & Doerzaph, Z. R. Pre Rear-End Positioning and Risk Extenuation System (PREPARES). Oral and poster presentations, International Technical Conference on the Enhanced Safety of Vehicles (ESV), Eindhoven, Netherlands, 2022.

Novotny, A. J., Bloomquist, E. T., Basantis, A. R., Rossi-Alvarez, A. I., Riexinger, L. E., Greatbatch, R. L., Haus, S. H., & Doerzaph, Z. R. Pre Rear-End Positioning and Risk Extenuation System (PREPARES). Poster presentation, SBES Symposium, Blacksburg, VA, 2019.

Novotny, A. J. & Basantis, A. R. Safe-D UTC. Poster presentation, University Transportation Centers (UTC) Spotlight Conference, Washington, DC, 2019.

Novotny, A. J. & Paliwal, M. Patellofemoral Pain Syndrome: Optimization and Sensitivity Analysis of

Muscle Parameters for Expedited Recovering Utilizing an OpenSim Model for Lower Extremities. Oral presentation, IMECE, Pittsburgh, PA, 2018.

Novotny, A. J. & Paliwal, M. Numerical Analysis on the Influence of Taper Junction Corrosion Profile with Emphasis on Ti-Alloy Modular Hip Arthroplasty. Oral presentation. IMECE, Tampa, FL, 2017.

Additional Education & Training

“Traffic Crash Reconstruction for Engineers,” Northwestern University Center for Public Safety, 2026

Peer Reviews

International Journal of Intelligent Transportation Systems Research

Transportation Research Board

Journal of Testing and Evaluation