

# Evan S. Gonzalez

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## Education

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- **University of Michigan** Ann Arbor, MI  
Ph.D. Nuclear Engineering and Radiological Sciences, Advisor: Dr. Brian Kiedrowski  
*Fall 2022*
- **University of Michigan** Ann Arbor, MI  
M.S. Nuclear Engineering and Radiological Sciences  
*2019*
- **Texas A&M University** College Station, TX  
B.S. Nuclear Engineering, Minor in Materials Science and Engineering  
*2017*

## Experience

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- **University of Michigan** Ann Arbor, MI  
Graduate Student Research Assistant  
*2017 - Present*
  - Project manager for a team of student developers (~ 10 people) writing an open-source suite of particle transport solvers (monte carlo, discrete ordinates) written in C++. Lead developer for the discrete ordinates solver.
  - Developed hybrid methods for transient monte carlo simulations utilizing the Shift monte carlo solver with fission source acceleration and exact point kinetics equations solvers.
- **Oak Ridge National Laboratory** Oak Ridge, TN  
Radiation Transport Group, Graduate Student Researcher  
*Summer 2018*
  - Developed and implemented monte carlo splitting/rouletting methods at various particle history events (i.e., collisions, surface crossings, mean free paths) utilizing weight windows generated by a deterministic transport solver.
- **Argonne National Laboratory** Lemont, IL  
Nuclear Engineering Division, Research Aide  
*Summer 2017*
  - Converted user/theory documentation for SAS4A/SASSYS-1 (reactor dynamics and safety analysis code) from MS Word to L<sup>A</sup>T<sub>E</sub>X and HTML.
- **Los Alamos National Laboratory** Los Alamos, NM  
ISR-1 (Space Science and Applications), Undergraduate Student Researcher  
*Summer 2015, Summer 2016*
  - Modeled nuclear detonation detection satellites with various on-board radiation detectors using GEANT4 and developed python scripts for generating angular/energy-dependent detector response matrices.

## Programming and Software

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- **Languages:** C++, Python, Matlab, HTML, Bash, Fortran, R, LabView
- **Software Development:** Unit Testing (Catch2, Gtest), Continuous Integration Testing (TravisCI, Github CI), Version Control (Git, Mercurial), Wiki/Documentation (Sphinx, Doxygen), Command Line Debugging (LLDB)
- **Radiation Transport Software:** MCNP, SCALE/Shift, OpenMC, GEANT4, PARCS

## Activities

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- Nuclear Engineering Student Delegation, Delegate (2019), Co-Vice Chair (2020), Chair (2021)
- University of Michigan Graduate Student Advisory Council, Member (2021-22)
- American Nuclear Society, Student Section Committee Member (2021-24), Texas A&M Stu. Chap. President (2016-17)
- Texas Nuclear Engineering Student Delegation, Delegate (2017)
- Texas A&M Nuclear Engineering Student Advisory Council, Member (2014-17)

## Journal Articles

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- [1] E. S. Gonzalez and G. G. Davidson, "Choosing transport events for initiating splitting and rouletting," *Journal of Nuclear Engineering*, vol. 2, no. 2, pp. 97–104, 2021.

## Conference Proceedings

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- [2] E. S. Gonzalez and B. C. Kiedrowski, "A monte carlo transient multilevel implementation applied to the C5G7-TD3 benchmark," in *International Conference on Physics of Reactors 2022 (PHYSOR 2022)*, American Nuclear Society, May 2022.
- [3] E. S. Gonzalez and B. C. Kiedrowski, "C5G7-TD3 transient benchmark results with shift," in *American Nuclear Society Winter Meeting*, American Nuclear Society, December 2021.
- [4] N. F. Herring, R. A. Yessayan, K. A. Beyer, R. J. Fonti, E. S. Gonzalez, E. C. Leppink, B. D. Rucinski, S. Schunert, Y. Y. Azmy, and B. C. Kiedrowski, "Ray effects mitigation through monte carlo coupling for detector problems," in *The International Conference on Mathematics and Computational Methods applied to Nuclear Science and Engineering (M&C)*, American Nuclear Society, April 2020.
- [5] E. S. Gonzalez, A. G. Tumalak, K. A. Beyer, E. J. Pearson, M. G. Gottesman, A. K. Agarwal, D. J. Fortner, F. A. Angers, D. Beqi, L. Green, B. J. Saltus, and B. C. Kiedrowski, "Hammer: An educational and research platform for neutral particle transport code development," in *American Nuclear Society Winter Meeting*, American Nuclear Society, November 2019.
- [6] E. S. Gonzalez, K. A. Beyer, R. J. Fonti, E. C. Leppink, B. D. Rucinski, N. F. Herring, R. Yessayan, S. Schunert, B. C. Kiedrowski, and Y. Y. Azmy, "Hammer: A monte carlo particle transport solver to support nonproliferation applications of the THOR deterministic  $S_N$  code," in *Advances in Nuclear Nonproliferation Technology and Policy Conference (ANTPC)*, American Nuclear Society, November 2018.
- [7] N. F. Herring, R. A. Yessayan, K. A. Beyer, R. J. Fonti, E. S. Gonzalez, E. C. Leppink, B. D. Rucinski, S. Schunert, Y. Y. Azmy, and B. C. Kiedrowski, "Mitigation of ray effects in  $S_N$  solutions through monte carlo coupling," in *Advances in Nuclear Nonproliferation Technology and Policy Conference (ANTPC)*, American Nuclear Society, November 2018.