Evan S. Gonzalez

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Education

- **University of Michigan** — Ann Arbor, MI
  Ph.D. Nuclear Engineering — *Expected May 2021*
  Advisor: Dr. Brian Kiedrowski
- **University of Michigan** — Ann Arbor, MI
  M.S. Nuclear Engineering — *May 2019*
- **Texas A&M University** — College Station, TX
  B.S. Nuclear Engineering, Magna Cum Laude — *May 2017*
  Minor in Materials Science and Engineering

Internships

- **Oak Ridge National Laboratory** — Oak Ridge, TN
  Radiation Transport Group, Graduate Student Researcher (NESLS) — *Summer 2018*
  - **Variance Reduction Method Development**: Developed Monte Carlo splitting/rouletting methods at various particle history events (i.e., collisions, surface crossings, mean free paths) utilizing S_N-generated weight windows.
  - **Method Implementation**: Implemented the new splitting/rouletting methods into the Shift code base. Code underwent vigorous unit testing, documentation, and code review procedures before being merged into the master branch.
- **Argonne National Laboratory** — Lemont, IL
  Nuclear Engineering Division, Research Aide — *Summer 2017*
  - **Code Documentation**: Conversion and updating of SAS4A/SASSYS-1 (reactor dynamics and safety analysis code) documentation to LaTeX math syntax.
  - **Wiki Development**: Designed the framework for wiki hosting of updated SAS4A/SASSYS-1 documentation.
- **Los Alamos National Laboratory** — Los Alamos, NM
  ISR-1 (Space Science and Applications), Undergraduate Student Intern — *Summer 2015, Summer 2016*
  - **Construction of High-Fidelity Models**: Full-scale modeling of nuclear detonation detection satellites with various on-board radiation detectors using GDML.
  - **Detector Response Validation**: Recreating experimental environments for simulation comparison using GEANT4.
  - **Detector Response Matrix**: Developed framework for angular and energy response-matrix-generating scripts to be used in future satellite detector deployments.
  - **Data Parsing**: Parsing and presentation of simulation results using ROOT.

Research

- **University of Michigan** — Ann Arbor, MI
  Graduate Student Research Assistant — *Fall 2017 - Present*
  - **Monte Carlo Particle Transport**: Team development of "mc-hammer", an open-source Monte Carlo particle transport solver written in C++.
- **Texas A&M University** — College Station, TX
  Undergraduate Researcher — *Various Semesters*
  - **Molten Salt Reactor Heat Exchanger Modeling (Fall 2016)**: Developing easy-to-use python tools for modeling heat exchangers for exploratory analysis.
  - **Alternative Fuel Sources for Radioisotope Thermoelectric Generators (Fall 2014)**: Researching viable fuel alternatives to Plutonium-238 for RTGs through spent fuel. Use of SCALE to model spent fuel compositions and critical mass geometries.
  - **Nuclear Desalination (Fall 2013)**: Designing and optimizing a pressurized water reactor system for purifying seawater. Modeling of fluid systems through jet ejectors, heat exchangers, and piping at supersonic speeds.

Programming & Software

- **Languages**: C++, Python, Matlab, Bash, Fortran, R, LabView
- **Software Development**: Unit/Integration Testing, Version Control (Git, Mercurial), Wiki/Documentation (Sphynx), XML Parsing (pugixml)
- **Nuclear Production Code Experience**: MCNP6, SCALE/Shift, OpenMC, GEANT4

Activities

- **Nuclear Engineering Student Delegation, Delegate (2019)**: Met with think tanks, federal agencies and US congress members to encourage support for nuclear engineering education, advanced reactor research, and domestic fuel-enrichment capabilities.
- **American Nuclear Society (Texas A&M Student Chapter), President (2016-17)**: Oversaw chapter meetings, student socials, community outreach, volunteering, and fundraiser events.
- **Texas Nuclear Engineering Student Delegation, Delegate (2017)**: Met with Texas state congress members and lobbyists to discuss nuclear science education and nuclear energy policy at large.
- **Texas A&M Nuclear Engineering Student Advisory Council, Member (2014-17)**: Organized nuclear engineering student research/internship censuses and relayed opinions/concerns of undergraduate students to faculty/staff.

Achievements

- **Nuclear Engineering Science Laboratory (NESLS) Poster Competition, 2nd Place (2018)**: Summer intern poster competition at Oak Ridge National Laboratory. Poster Title: Applying New Variance Reduction Methods in Shift
- **"Aggies Invent" 24-Hour Design Competition, 3rd Place (2015)**: Designed 3D-printable bottle and cap to be used for enjoying adult beverages in space.
- **Texas A&M University Public Speaking Competition, Semifinalist (2014)**: Annual public speaking competition performing an original oratory.