Nathan Ryan

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# Dear Hiring Manager,

I am excited to apply for the Modeling/Simulation Professional position within the Data Twin Frameworks department at Idaho National Laboratory. With a strong foundation in nuclear engineering, computational modeling, and simulation, I am confident in my ability to contribute to your team's work in advancing complex modeling solutions across diverse scientific and engineering fields. I am particularly drawn to the opportunity to collaborate on energy delivery, and critical infrastructure applications, where my expertise in energy systems and advanced reactor modeling will add significant value.

Through my academic and research experience at the University of Illinois, I have developed a robust skill set in the design, implementation, and optimization of models and simulations, particularly within nuclear and energy systems. For example, I extended the Cyclus nuclear fuel cycle code to optimize reactor operations and performed detailed analyses of transition scenarios for advanced nuclear technologies. I have also worked on energy system modeling, simulating the integration of renewable energy sources with advanced nuclear reactors and microgrids. My expertise in Python and C++, equips me with the programming skills necessary to address complex problems and contribute to high-quality simulation development.

Moreover, I have experience with open and accessible science principles, including working with containerization tools such as Docker. My work as a Graduate Research Assistant included developing models and tools in Python and C++, combining my technical skills with my passion for applied research and development. I am particularly excited about the opportunity to contribute to the testing and deployment of models in cloud environments, and to apply my experience with data visualization to help transform complex simulation results into actionable insights for stakeholders.

Thank you for considering my application. I am excited about the possibility of contributing to INL’s mission and the cutting-edge work you are doing in simulation and modeling for critical infrastructure and energy security. I look forward to the opportunity to further discuss how my qualifications align with the needs of your department.

Best regards,

Nathan Ryan