

Location: West Lafayette, IN  
Posting Date: 06/10/2021  
Application Deadline: Open Until Filled  
Start Date: Immediately  
Salary Range: 55-85K

## Job Description

The CYbersecurity & data aNalytics for Industrial Control Systems (CYNICS) group in the School of Nuclear Engineering at Purdue University has open postdoctoral positions. Our mission is to develop novel solutions to engineering problems using data-driven, physics-based, and hybrid methodologies. Successful candidates will be engaged in a number of projects focused on advancing the role of data science for a wide range of nuclear engineering applications, e.g., modeling-based engineering, safety, cybersecurity, and performance optimization. Some of the CYNICS ongoing projects include development of cybersecurity and software security solutions for critical systems, development of condition monitoring algorithms for anomaly detection, optimization of hybrid nuclear energy systems, optimization of additive manufacturing processes, model-validation for first-of-a-kind reactor systems, uncertainty quantification and reduced order modeling for multi-physics systems.

## Postdoctoral Position Qualifications

A prospective candidate is expected to have a PhD degree in a discipline with a strong background in mathematical physics, applied mathematics, statistics, or engineering. Preference will be given to candidates with qualifications in data science and artificial intelligence. Other considerations include: a) general understanding of the principles of mathematical modeling in engineering applications, e.g., materials modeling, thermal-hydraulics modeling, transport modeling, etc.; b) experience in the development of physics-based or data-driven models, strong familiarity with principles of Bayesian statistics, semi-empirical fitting, mathematical inference, uncertainty quantification; c) proficiency in the implementation of standard machine-learning techniques, e.g. decision trees, ensembles, Bayesian networks etc., and deep learning, e.g. Tensorflow, Keras, Pytorch etc.; d) experience in working with and developing large computer codes; e) experience in programming with high level languages, e.g., Python, C++, Java, etc.; f) written communication skills as demonstrated by peer-reviewed publications.

## Application Requirements

To respond to this ad, qualified candidates should submit the following documents: a) cover letter, b) detailed resume listing all publications, positions held, synergistic activities, awards, etc., c) research statement (2 pages max) outlining the candidate's research interests and vision, d) two key peer-reviewed publications that highlight the candidate's past research accomplishments. Please indicate on your resume if you are a US Citizen or US Permanent Resident as some of the projects have export-control restrictions. Please combine the documents in the noted order into a single PDF file, not to exceed 20 MB, and named PostDocPurdueAppl\_Lastname\_Firstname.PDF, and email to: Prof. Abdel-Khalik, [abdelkhalik@purdue.edu](mailto:abdelkhalik@purdue.edu) with the subject line, RE: Post Doc Position Application.

For more information, please visit <https://engineering.purdue.edu/CYNICS>