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| **TITLE:** | AI / Advanced Data Analytics for Energy Infrastructure Sensing |
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| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
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| **NETL CONTACT:** | Paul Ohodnicki; paul.ohodnicki@netl.doe.govJennifer Bauer; jennifer.bauer@netl.doe.gov  |
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| **DUTY LOCATION:** | Pittsburgh, PA; |

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| **ACADEMIC LEVEL:** | **X** | PhD | **X** | MS |  | BS |  | Undergrad |  | Faculty |

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| **POSITION** **INFORMATION:** | 1-year appointment; full time (40 hours per week) with the possibility of extension |
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| **CLOSING DATE:** | 6/1/2019 |
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| **WHO MAY BE** **CONSIDERED:** | United States Citizens, LPRs, & Foreign Nationals with appropriate approval which includes F-1 OPT with EAD (STEM extension not valid), J-1 Exchange Visitor, and LPR with EAD |

**SUMMARY:**

Through the Oak Ridge Institute for Science and Education (ORISE) this posting seeks a post-doctoral researcher to apply for an appointment to participate in the research and development of advanced data analytics methods applied to energy infrastructure sensing applications, with an emphasis on natural gas infrastructure at the National Energy Technology Laboratory (NETL). NETL is a multi-disciplinary, scientific and technical-oriented national laboratory and the U.S. Department of Energy’s primary lab supporting fossil fuel-based energy research.

The scientist/researcher will collaborate on an interdisciplinary team spanning industry, academic, and national laboratory partners that seeks to develop and demonstrate advanced sensors and enabling technologies for energy infrastructure monitoring applications. An emphasis will be placed on artificial intelligence and related methods for predictive monitoring of incipient failures within the natural gas infrastructure by leveraging distributed optical fiber sensing. The candidate will also have opportunities to engage in data analytics for wireless sensor technology platforms and other energy infrastructure, including subsurface monitoring.

**QUALIFICATIONS:**

An ideal candidate would be capable of researching within the team to identify and apply advanced data analytics methods to characterize and classify spatial, temporal, and frequency dependent features of optical fiber based distributed sensing data as it relates to indicators of incipient failures and leaks within the natural gas infrastructure. The candidate would also be familiar with multivariate analysis techniques for extracting information related to multiple parameters simultaneously from advanced sensing platforms.

**KEY REQUIREMENTS:**

1. An advanced degree in Statistical Methods, Mathematics, Data Science, Computer Science, Electrical Engineering, Applied Physics, or a related field (MS / PhD preferred).
2. Experience with development and application of advanced data analytics methods (e.g. artificial intelligence, principle component analysis, neural networks, machine learning, big data analytics) using custom developed algorithms or commercially available software packages.
3. An interest in intelligent techniques for energy infrastructure monitoring and sensing.
4. Experience with high performance computing environments, tools, and applications.

**HOW TO APPLY:**

Applicants should apply through the Oak Ridge Institute for Science and Education (ORISE) program. The ORISE program provides opportunities for undergraduate students, recent graduates, graduate students, postdoctoral researchers, and faculty researchers to apply classroom knowledge in a real-world setting to learn about NETL’s core mission areas.

* Interested applicants should complete the online application at http://www.zintellect.com. For questions or issues, please email NETLadmin@orau.org.
* In the online application, **list** **Paul Ohodnicki** **as your requested mentor.** This will associate your application with this research opportunity. Please also send a CV to Paul Ohodnicki: paul.ohodnicki@netl.doe.gov and Jennifer Bauer: jennifer.bauer@netl.doe.gov.
* If you have additional questions, please contact Patricia Adkins-Coliane, Patricia.adkins-coliane@netl.doe.gov, who is the NETL Graduate Education Program Manager.

The participant(s) will be assigned to the program solely for the educational benefit it provides. The assigned project should not include activities that are reserved for federal employees nor should it require a participant to perform inherently governmental functions such as: supervise or mentor federal employees or federal contractor staff, hire or fire anyone; have budget, program management, or signature authority; carry an official job title; or function in any way as a representative of the federal government.