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Job Posting Title

Embedded RF Systems Engineer / NB50603557

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Purpose

The Cyber & Information Security Research (CISR) Group at Oak Ridge National Laboratory conducts cutting edge research in cyber security, situational awareness, visual analytics, secure communications and information security, sensing and signal analytics to defend, understand, secure, and defeat known and unknown adversaries to protect the nation's energy, economic, and security infrastructure. For more information on the group's activities, visit http://www.cisr.ornl.gov/.

Major Duties/Responsibilities

The Secure Communications, Sensing & Signal Analytics Team within CISR Group is currently seeking embedded RF Systems Engineers to collaborate and lead the exploration and development of innovative, secure and novel approaches to solve emerging wireless networking challenges and to contribute to current and future projects in the following areas (but not limited to):

- RF Hardware Development
- Unique RF System Design
- Antenna Design/Measurement
- Embedded MCU programming
- Digital Logic/FPGA programming
- RF component level selection and bench top testing.
- Digital Signal Processing
- Detailed hardware level debugging
- Transportation Infrastructure Security (at a national level)
- Systems and Vulnerabilities
- 5G Systems and Future Vulnerabilities
- Energy Grid Security
- Embedded Systems Security
- Network Security
- Reverse Engineering

Qualifications Required

The Secure Communications, Sensing & Signal Analytics Team works in a collaborative environment on multiple projects at

any given time. Select job duties may include, but are not limited to:

• Innovative thinking about hardware, RF, software, and combinations thereof as well as technology evaluation, concept design, prototype development, implementation, and demonstration.
• Development of waveforms on SDR platforms such as Ettus Research, Epiq Solutions, and Hack RF.
• Designing, testing, debugging/troubleshooting and maintenance of specialized GNU Radio programs.
• Development of novel solutions for cyber-physical security concerns, requirements, architecture and design, construction, and testing.
• Development of software and digital logic to solve unique and complicated, high-speed, high-bandwidth networking and communication issues.
• Responsible for designing, testing, debugging/troubleshooting, and maintenance of specialized RF Hardware and embedded systems.
• Develop capabilities to recognize and secure physical/RF vulnerabilities and the technologies to defeat potential future threats.
• Utilize digital logic and embedded Linux to aid in the development of unique, secure waveforms and protocols.
• Work on a variety of engineering assignments, collaborating with scientists and engineers, and will be expected to produce reliable software and systems and contribute to publications and funding proposals as needed.
• Work in both classified and unclassified settings and on a wide variety of applied areas.
• Write and participate in research proposals to major funding agencies.
• Present and report research results and publish scientific findings in peer-reviewed journals.

Work Directions and Interfaces

Basic Qualifications:

• B.S. in Electrical Engineering, Computer Engineering, or closely related field and at least 1 year of relevant experience outside of degree.
• The ability to obtain and maintain a DOE Security Clearance.

Preferred Qualifications:

• M.S. Degree (or higher) and 2+ years of relevant experience preferred.
• Fluent in Linux.
• Experience with RF system design and schematic capture tools.
• Programming skills in C, C++, Java, and Python experience with a demonstrated ability to use design patterns and software engineering best practices for secure, scalable, reliable, rapid implementation preferred.
• Previous experience with Software Defined Radio systems preferred.
• Candidates with communication protocol development, signal analysis, and machine learning experience would be considered a plus
• Excellent communications skills for visualization and presentation of methodology, results, and demonstrations.
• Excellent teamworking ability and have the ability to independently identify and solve challenging technical problems.
• Must possess a strong commitment to ethical and professional values as well as maintain a compliance with environmental, safety, health, and quality standards.

Security Clearance Requirement:

This position requires the ability to obtain and maintain a clearance from the Department of Energy. As such, this position is a Workplace Substance Abuse program (WSAP) testing designed
position which requires passing a pre-placement drug test and participation in an ongoing random drug testing program in which employees are subject to being randomly selected for testing. The occupant of this position will also be subject to an ongoing requirement to report to ORNL any drug-related arrest or conviction or receipt of a positive drug test result.

This position will remain open for a minimum of 5 days after which it will close when a qualified candidate is identified and/or hired.

We accept Word(.doc, .docx), Excel(.xls, .xlsx), PowerPoint(.ppt, .pptx), Adobe(.pdf), Rich Text Format(.rtf), HTML(.htm, .hmtl) and text files(.txt) up to 2MB in size. Resumes from third party vendors will not be accepted; these resumes will be deleted and the candidates submitted will not be considered for employment.

If you have trouble applying for a position, please email ORNLRecruiting@ornl.gov.

Notice: If the position requires a Security Clearance, reviews and tests for the absence of any illegal drug as defined in 10 CFR 707.4 will be conducted by the employer and a background investigation by the Federal government may be required to obtain an access authorization prior to employment and subsequent reinvestigations may be required.

If the position is covered by the Counterintelligence Evaluation Program regulations at 10 CFR 709, a counterintelligence evaluation may include a counterintelligence-scope polygraph examination.

ORNL is an equal opportunity employer. All qualified applicants, including individuals with disabilities and protected veterans, are encouraged to apply. UT-Battelle is an E-Verify Employer.