

PROJECT #1 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #1: COATINGS AND CORROSION FOR INSTALLATION RESILIENCE

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Paint Technology Technical Center of Expertise (PTCx) is in search of engineers of various backgrounds to assist in developing holistic technology in the area of coatings and corrosion. Areas of interest include, but not limited to, material, structural, and corrosion engineering. The PTCx is also in search of a data scientist to provide deep analysis of a large database of material performance data.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: The intern will work in a team of 5-8 professionals in a laboratory environment, performing material-based testing, data analysis and development of creative solutions. Work can include application and removal coatings, lifting items up to 40 lbs. and repetitive testing to ASTM and ISO standards. To level of experience and education, state of the art analysis instrumentation will be used (3D surface profiler, GC, SEM, etc.). For data science, work includes assisting in development of experimental base and analyzing large data sets to identify relationships or significant information.

LOCATION: IN-PERSON, ON-SITE

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PROJECT #2 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #2: WATER USE, RESILIENCE, SECURITY, and TECHNOLOGY

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Water Use, Resilience, Security, and Technology Team is in search of engineers and scientists of various backgrounds to assist in developing holistic technology in the area of water use and resiliency. Areas of interest include, but not limited to, civil and environmental engineers, computer scientist and engineers, data scientists, computational modelers, and GIS scientists.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: The intern will work in a team of 3-5 professionals at the cutting edge of water research, whether improving sustainability, protecting critical assets, or preparing for droughts. Working with both policymakers and researchers, work assignments can vary from field specific investigations at sites of interests to research and examination of water use policy for improved water security for installations and communities.

LOCATION: IN-PERSON, ON-SITE, REMOTE WORK POTENTIAL BASED ON EXPERIENCE AND PROJECT

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PROJECT #3 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #3: : BUILDING ENERGY AND SYSTEMS

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Building and Energy Systems Team is in search of engineers and scientists of various backgrounds to assist in developing holistic technology in the area of optimization of facility related controls systems for the Department of Defense. Areas of interest include, but not limited to, electrical and mechanical engineers, computer scientist and engineers, and systems engineers.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: The intern will work in a team of professionals at the cutting edge of building energy and systems work related to DoD installations. The range of applications is project specific, but may include programming, controls, cyber security, and HVAC, including both hands-on work and review and analysis of Army and DoD-level policy and guidance.

LOCATION: IN-PERSON, ON-SITE, REMOTE WORK POTENTIAL BASED ON EXPERIENCE AND PROJECT

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PROJECT #4 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #4: OPERATIONAL ENERGY

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Operational Energy Team is in search of engineers and scientists of various backgrounds to work in the fields of novel electrical generation, storage, distribution, and modeling systems for the U.S. Army and Department of Defense applications in austere environments. . Areas of interest include, but not limited to, systems engineering, computer engineering, mechanical engineering, electrical engineering, or general engineering.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: This position requires working as part of a multidisciplinary science and engineering team doing cutting edge research and technology development to support Army Operational requirements and emergency operations (both foreign and domestic). Due to the nature of the work, the employee will be expected to work onsite in a laboratory environment at least 75% of their time. Assignments may include working in areas related to battery storage systems, hybrid power generation technology, electrical control systems, electrical system metering and monitoring, microgrid applications for austere environments, flywheel energy storage/discharge, flow battery energy storage/discharge, or energy system simulations and austere facility power requirements.

LOCATION: IN-PERSON, ON-SITE

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PROJECT #5 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #5: OPERATIONAL WATER

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Operational Water Team is in search of engineers and scientists of various backgrounds to work in the fields of operational water supply and operational wastewater treatment. Educational backgrounds of interest include environmental engineering, civil engineering, mechanical engineering, electrical engineering, or general engineering.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: The employee will support the development of methods and techniques to recycle and produce water on-site to reduce the net water demand for the U.S. Army and Department of Defense applications in austere environments. This position requires working as part of a multidisciplinary science and engineering team doing cutting edge research and technology development to support Army Operational requirements and emergency operations (both foreign and domestic). Detailed assignments could include working in the areas of self-regenerating bio-filters, atmospheric water extraction, grey/black water re-use, novel methods to conduct water filtration/re-use, techniques to mitigate harmful algal blooms and naturally occurring biotoxins, or methods for efficient water storage, distribution, and transport in austere conditions.

Due to the nature of the work, the employee will be expected to work onsite in a laboratory environment at least 75% of their time.

LOCATION: IN-PERSON, ON-SITE

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PROJECT #6 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #6: MILCON Requirements, Standardization, and Integration (MRSI), Project Extranet (ProjNet), and other systems or applications.

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research Laboratory at Champaign, IL, is seeking one or more students to work on software development for the MILCON Requirements, Standardization, and Integration (MRSI), Project Extranet (ProjNet), or systems or applications. Preferred educational backgrounds include Computer Science or Computer Engineering.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: The MRSI team develops software applications and hosts the MRSI website that presents Military Construction policy, regulations, standards, and designs to provide the facility community with the tools they need to build and maintain the Army's vast facility infrastructure.

ProjNet is an internet-based service that allows the secure exchange and processing of design and construction information among authorized business partners. ProjNet offers a suite of tools to manage owner-related business processes including design reviews, bidder inquiry, requests for information and construction submittal reviews. ProjNet facilitates the formal oversight, control, review, management, and secure exchange of complex project documents among and between all project stakeholders.

Students will gain industry experience in Angular, Entity, Asp.net Core, TypeScript, C#, .Net Framework, Microsoft Web Development tools, Enterprise development, and interdisciplinary work with other forms of engineering.

Work assignments will involve the application of computer science theories, principles, and techniques to assist in performing a wide variety of complex information system technology, software development and cyber security functions.

LOCATION: IN-PERSON, ON-SITE, REMOTE WORK AVAILABLE DEPENDING ON ASSIGNMENT

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PROJECT #7 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #7: POLYMER COMPOSITES

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Polymer Composites Team is in search of engineers and scientists of various backgrounds to work in the fields of innovative materials engineering and testing. Educational backgrounds of interest include civil engineering, materials engineering, structural engineering, mechanical engineering, or general engineering.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: This position supports our Polymer Composites Team. The ideal candidate will have skills and training in materials science as well as structural engineering. Prior experience with polymer composite materials testing or research is a plus. Seeking self-motivated teammates who will perform cutting-edge research and engineering projects under the mentorship and guidance of a senior engineer. Work assignments may include preparing materials for technical presentations and writing and reviewing of technical reports, journal articles, and conference papers, planning and conducting laboratory experiments in accordance with all applicable regulations, and setting up/operating instruments, which may include a Scanning Electron Microscope, X-ray Fluorescence Spectrometer, Fourier Transform Infrared Spectrometer, Thermogravimetric Analyzer, Dynamic Scanning Calorimeter, or other similar instruments.

Due to the nature of the work, the employee will be expected to work onsite in a laboratory environment at least 75% of their time.

LOCATION: IN-PERSON, ON-SITE

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PROJECT #8 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #8: STRUCTURAL HEALTH MONITORING

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Structural Health Monitoring Team is in search of engineers and scientists of various backgrounds to work in the fields of structural behavior and structural health monitoring. Educational backgrounds of interest include civil engineering, materials engineering, structural engineering, mechanical engineering, or general engineering.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: This position supports our Structural Health Monitoring Team. The ideal candidate will have skills and training in structural engineering and remote monitoring. Prior experience with condition assessment of large-scale civil and military infrastructure is a plus. Seeking self-motivated teammates who will perform cutting-edge research and engineering projects under the mentorship and guidance of a senior engineer. Selected candidate will support work to initiate, plan, and conduct scientific investigations in the laboratory and in the field, including development of test protocols, instrumentation plans, and data acquisition parameters, build and utilize numerical models of infrastructure to analyze structural behavior (familiarity with or willingness to learn Abaqus is preferred), and collects and analyze sensor data from static and dynamic loading events on structures to characterize structural behavior, processes data in mathematical computing languages to inspect for features indicative of structural condition (Python or willingness to learn Python preferred).

Due to the nature of the work, the employee will be expected to work onsite in a laboratory environment at least 75% of their time.

LOCATION: IN-PERSON, ON-SITE

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PROJECT #9 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #9: MILITARY NOISE

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Military Noise Team is in search of engineers and scientists of various backgrounds to work in the field of military noise. Educational backgrounds of interest include computational physics and research physics.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: This position supports our Military Noise Team. The Military Noise Team performs research that includes 1) identification, monitoring, analysis, and prediction of acoustic signals from sources within the distant landscape, and 2) assessing, measuring, and mitigating noise from those sources nearby. Research scope ranges from fundamental investigations to applied research and development, utilizing a blend of theoretical, computational, and experimental studies. Primary duties include performing top-quality research both individually and within teams, dissemination of research results to the scientific community through presentations at scientific conferences and peer-reviewed research articles, developing and writing innovative proposals to keep ERDC on the forefront of acoustics research, developing and fostering communications within a scientific network for collaborations.

LOCATION: IN-PERSON, ON-SITE, OR REMOTE WORK PENDING PROJECT SPECIFIC ASSIGNMENT

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PROJECT #10 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #9: SUSTAINABLE RANGES

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Training Lands and Ranges Team is in search of candidates of various backgrounds to work in the field of sustainable military ranges. Educational backgrounds of interest include geography and GIS-related fields.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: This position supports our Sustainable Ranges Team that supports DoD operational ranges uses for soldier training of various military operations. The selected candidate will use knowledge and experience in CAD, GIS, and remote sensing to conduct (lead/assist) fundamental and applied research studies in the use of geospatial information and remote sensing technologies to apply towards the fields of military land management, military ranges and training lands, design processes, and hydrologic modeling.

LOCATION: IN-PERSON, ON-SITE, OR REMOTE WORK PENDING PROJECT SPECIFIC ASSIGNMENT

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PROJECT #11 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #11: ADDITIVE CONSTRUCTION

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Additive Construction Team is in search of candidates of various backgrounds to work in the field of additive construction. Educational backgrounds of interest include civil engineering, architecture, mechanical engineering, electrical engineering, or general engineering.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied work.

DESCRIPTION OF WORK AREAS The employee will support the development of additive construction (additive manufacturing or 3D printing for construction) technologies, focusing on the modernization of construction for military applications. This program involves the application of deployable large-scale 3D printers to produce infrastructure components on-demand in-the field using locally available materials. Some applications for this technology include bridges, buildings, and other infrastructure (e.g. barriers, culverts). This position requires working as part of a multi-disciplinary science and engineering team that is dedicated to modernizing construction practices and develop materials by design to improve mechanical, thermal, and structural performance. Typical work assignments include performing structural calculations using structural codes, designing test fixtures for performing structural testing on the structural load floor facility at ERDC-CERL, producing or guiding production of structural drawings and construction plans for test specimens or demonstrations, perform structural calculations for 3D printed structures, using materials data or obtaining materials data through lab testing to inform designs, analyzing test results, writing reports, performing validation of existing design methods, developing/refining test methods for determining structural performance, applying existing codes and standards (e.g, Codes/Standards: ASCE 7, IBC, ACI 318, TMS 402/602, AISC, NDS, ASTM) to evaluate structures and establish new standards for additive construction applications, developing understanding of mechanics of materials, design of structural components (beams, walls, columns), design of connections, and structural failure modes (fracture, yielding, buckling, fatigue, creep), and interpreting results from structural testing of columns, walls, beams and structural systems (components with connections).

LOCATION: IN-PERSON, ON-SITE

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PROJECT #12 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #12: CONTINGENCY BASING

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Warfighter Support Team is in search of candidates of various backgrounds to work in the field of contingency basing. Educational backgrounds of interest include civil engineering, architecture, mechanical engineering, electrical engineering, or general engineering.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: The employee will support the development of methods, facilities, and materials for construction in austere environments for the U.S. Army and Department of Defense applications. Technologies will be applied to multiple domains, including support to military operations, emergency response operations, training environments, and collaboration with emerging technologies such as autonomous vehicles and additive construction. This position requires working as part of a distributed, multidisciplinary science and engineering teams doing cutting edge research and technology development to support the Army Modernization efforts. Assignments will be in the areas of facility engineering for austere environments, methods to automate facility design, site planning and master planning, design of complexes, and individual facility designs for austere and extreme weather environments, and military techniques for austere construction, imperial and metric construction standards & materials and global planning factors for austere construction.

LOCATION: IN-PERSON, ON-SITE

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PROJECT #13 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #13: ENGINEER ROBOTICS

TECHNICAL DISCIPLINES: The USACE Construction Engineering Research and Development Center, Warfighter Support Team is in search of candidates of various backgrounds to work in the field of engineer robotics. Educational backgrounds of interest include systems engineering, computer engineering, mechanical engineering, electrical engineering, or general engineering.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: The employee will support the development of novel autonomous behavior and control solutions for robotic, unmanned and mechatronic systems for the U.S. Army and Department of Defense robotic applications. This position requires working as part of a multidisciplinary science and engineering teams doing cutting edge research and technology development to support the Army Modernization efforts. Work assignments would include 3D World model generation, cost map based path planning, geodatabase design, robot perception, robot localization, development of computer code and hardware implementation, development of Machine Learning/Artificial Intelligence based control algorithms and their implementation , and Robotic Operating Systems.

Due to the nature of the work, the employee will be expected to work onsite in a laboratory environment at least 75% of their time

LOCATION: IN-PERSON, ON-SITE

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PROJECT #14 – ARMY CORPS OF ENGINEERS – SUMMER 2023

SUMMER PROGRAM: Arizona State University

PROJECT #13: DATA ANALYTICS, DATA SCIENCE, MACHINE LEARNING/AI

TECHNICAL DISCIPLINES: The USACE Information Technology Laboratory, Computational Science and Engineering Division is in search of candidates of various backgrounds to work in the fields of data analytics, data science, and machine learning/AI. Educational backgrounds of interest include Computer Science, Computational Science/Engineering, or pursuit of a degree in a related area. Experience in programming, data analytics, software development and testing are a plus.

LEVEL OF EDUCATION EXPECTED: Work is available for a wide range of education from high school to college level execution. Higher levels of experience and education allows for more applied worked.

DESCRIPTION OF WORK AREAS: The employee will support work in the broad areas of data analytics, data science, and machine learning and artificial intelligence. Selected students will assist in developments of methods of processing and “wrangling” data sets of hundreds of terabytes of data, storing data, connecting the data to High Performance Computing Resources, and developing analytical methods to explore the data. Assignments will involve the application of sound software development, software testing and integration, and data analysis to assist in performing a wide variety of complex digital engineering and data analytics research project. The student trainee will serve as a member of a technical staff in a development capacity, assisting higher-graded professionals, scientists, and engineers. Training assignments will be configured to build training experiences to prepare the student for increasingly more complex work, involving the practical application of academically-acquired, computer-science knowledge. The student trainee will work on multidisciplinary project teams that conduct R&D for ITL’s R&D programs and may assist with documenting project results in presentations, reports, and professional publications. The student trainee will work as part of an interdisciplinary team of scientists and engineers.

LOCATION: IN-PERSON, ON-SITE OR REMOTE WORK PENDING PROJECT SPECIFIC DETAILS

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