

**Applicant Name:** Calder, Cameron

**Organization:** U.S. Department of Energy (DOE)  
**Program:** EERE Robotics Internship Program

March 19, 2021

Dear Cameron Calder,

Congratulations on your selection for an appointment to the Energy Efficiency & Renewable Energy (EERE) Robotics Internship Program. This program is sponsored by the U.S. Department of Energy (DOE), Advanced Manufacturing Office (AMO). This appointment is awarded to you in recognition of your past achievements, academic and career objectives, and interest in the DOE mission. During your appointment you will become a member of the scientific community of your host facility and will be mentored in a professional environment.

Your expected start date is June 20, 2021. Your appointment will end on or before August 29, 2021. If these dates change for any reason, you must notify Jennifer Jackson.

**Project Description:**

Following the discovery of neutral atom trapping via laser cooling in 1987, the Magneto-Optical Trap (MOT) has become a standard technology used in almost every AMO laboratory (Atomic, Molecular and Optical physics). The experimental setup of the MOT is rather complex, as it combines an ultra-high vacuum system (UHV), complex laser system, and various sources of magnetic fields. While the technology of individual components evolved over time to provide better and more stable solutions, the alignment of the trap still requires constant and tedious maintenance performed hands-on by skilled experimentalists. The objective of the project is to develop a self-tuning Magneto-Optical Trap using automation approaches and machine learning techniques to remove the need for a trained operator.

The participant will be a part of a research team researching in the field of quantum technologies, in particular quantum sensors and quantum simulators using cold atoms. During the appointment, the student will develop a custom control system for the mechanical adjustment of optical components for the experimental setup. She will also optimize the performance of the experiment using machine learning techniques. Overall, the student will acquire skills in LabVIEW, python, and learn how to design the architecture for experiment automation. She will also become familiar with certain ML optimization methods, such as simplex algorithms, a stochastic approximation for noisy systems, and deep learning. Lastly, the student will become familiar with the physics of neutral atoms trapping. A good understanding of the underlying physical processes is a key to success in this project.

Katarzyna Krzyzanowska will serve as your mentor and can be contacted at (505) 500-5314 or [kat\\_krz@lanl.gov](mailto:kat_krz@lanl.gov).

You will receive a stipend of \$600.00 per week based on full-time participation.

Your appointment will be served at:

Los Alamos National Laboratory  
Los Alamos Natl. Lab  
P.O. Box 1663  
Los Alamos, NM 87545

Due to current COVID-19 impacts, your onsite appointment is subject to change to a virtual appointment. Onsite access is dependent on the current requirements and restrictions at your hosting facility at the start of your appointment.

All appointment periods are subject to the continued availability of funding. You are participating in the assigned program solely for the educational benefit it provides. Your assigned project should not include activities that are reserved for federal employees nor should it require you 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. If you have concerns about the appropriateness of your assigned project, please contact your program representative immediately.

This program is administered by the Oak Ridge Institute for Science and Education (ORISE). ORISE is a U.S. Department of Energy (DOE) institute managed by Oak Ridge Associated Universities (ORAU) through a contract between ORAU and DOE.

You will be considered a program participant and will not enter into an employee/employer relationship with ORISE, ORAU, DOE, or any other office or agency.

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If you have any questions about your appointment, please contact Jennifer Jackson, Program Specialist at (865) 250-1707 or [Robotics.Internships@orise.ornl.gov](mailto:Robotics.Internships@orise.ornl.gov).

Sincerely,  
Jennifer Burnette, Project Manager

C:  
Katarzyna Krzyzanowska, Los Alamos National Laboratory  
Casperson, Cassandra, Los Alamos National Laboratory

## Stipend Statements

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### Stipend Proration and Payment Schedule

If you participate for part of a week, your payment will be prorated based on your weekly stipend rate and actual participation during that week. Stipend payments will be electronically deposited into your financial account every two weeks according to a pre-determined schedule.

### Tax Information

Be sure to read the "Taxability of Stipends and Other Payments" section in the Terms of Appointment and consult a tax advisor with questions. While stipends and other payments are considered taxable by the US Federal Government, ORISE does not withhold or report taxes to the US Internal Revenue Service (IRS), unless it is required by law for certain foreign nationals.

### Stipend Effective Date

Stipend payments will become effective as soon as you have met all contingencies and provided additional required information, including a certification from your host facility that you have begun your appointment.

### Final Stipend Payments

Release of your final stipend payment is contingent upon verification that you have met all program requirements.

### Health Insurance

You are required to have coverage under a health insurance plan for the entire appointment period. It is your responsibility to secure insurance coverage before arriving at the appointment site and provide proof of coverage when requested to do so. Please note that foreign nationals may have additional requirements.

## Travel

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### Eligibility:

If your address is located 50 miles or more from your host facility, you may be eligible for round trip reimbursement to/from Los Alamos, New Mexico based on program guidelines, not to exceed \$1000.00. If you have any questions about your eligibility for inbound transportation or your circumstances have changed since application, please contact the Program Manager. You may drive, fly, or travel by train.

When deciding on your mode of transportation, please consider the distance to and from your housing and your host facility and determine whether you can easily use public transportation or will need to drive a personal vehicle. Your travel dates must be pre-approved by your program contact. Because not all travel expenses may be reimbursed, make sure you understand what is covered and what is not covered (see the sections on "Travel by Air or Train" and "Travel by Personal Vehicle").

### Travel by Air or Train:

If you choose to travel by plane or train, contact [TravelCentral@ornl.gov](mailto:TravelCentral@ornl.gov) to discuss the options for travel arrangements. If Travel

Central makes the arrangements, the ticket will be issued at the lowest possible cost and will be non-refundable. You will have an opportunity to review your itinerary before the ticket is purchased. Once you have approved the itinerary, you will receive an e-ticket. Any changes to your ticket must be made by ORISE. You will be responsible for any non-emergency costs related to any changes made to the itinerary after the ticket has been purchased.

If you choose to make your own air arrangements, you must use a US flagship carrier. Travel on foreign air carriers will not be reimbursed.

**Travel by Personal Vehicle:**

If you drive your personal vehicle, you will be reimbursed for actual mileage at the current US General Services Administration mileage reimbursement rate (for mileage according to Rand McNally for the most direct route) one way. See the section on "How to Receive Reimbursement for Mileage in Your Personal Vehicle" for instructions on how to be reimbursed for mileage. Additional restrictions may apply.

**How to Receive Reimbursement for Mileage in Your Personal Vehicle:**

To receive reimbursement for driving your personal vehicle or other expenses to which you are entitled, such as ground transportation or lodging (if authorized), you must complete a Travel Certificate after travel to and another after travel from your host facility and return it to ORISE within seven business days of arrival at your destination. Reimbursement for mileage will be made only for travel in your personal vehicle. Transportation reimbursements for travel actually performed will be paid on the basis of the most direct route and are made provided that such payment does not represent dual compensation from any other source.

## Housing and Local Transportation

**Housing**

You are responsible for identifying and making arrangements for housing prior to the beginning of your appointment.

You will receive a housing allowance of \$150 per week if you live more than fifty (50) miles one-way from your assigned hosting facility. You are responsible for identifying and making arrangements for housing prior to the beginning of your appointment.

If you participate for only part of a week, your housing allowance will be prorated accordingly. Housing allowances are considered taxable. Be sure to read the "Taxability of Stipends and Other Payments" section in the Terms of Appointment. Your housing allowance will be direct-deposited into your financial account and will be paid with each stipend payment.

**Local Transportation**

Daily transportation expenses to and from your host site are not reimbursable, nor are daily parking expenses incurred at your host facility.

## Contingencies

Our activation of this appointment, including our ability to process your stipend payments, is contingent on:

- Proof of US citizenship or a valid immigration status. You will be asked for this information after you accept this appointment.

Under certain circumstances, candidates with F-1 status may be eligible to participate. ORISE will work with those participants to determine eligibility. For candidates planning to use an F1 immigration status for participation in this program, pre or post completion F1-Optional Practical Training (OPT) is acceptable; however, candidates are not eligible for the 24 month STEM OPT extension because participants will not be entering into an employee/employment relationship with ORISE, DOE, or any other federal agency.

- Approval from your host facility to access the assigned facilities. You cannot begin your appointment or have access to your host facility until that approval is granted.
- Proof of coverage under a health insurance plan. See the section on "Health Insurance" for more information. It is your responsibility to secure insurance coverage before reporting for your appointment. You will be asked for this information after you

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accept this appointment.

- Confirmation from your mentor of the date on which you have begun your appointment. This process will be explained to you once you accept and begin the onboarding process.
- Acceptance of the appointment offer, appointment addenda, and "Terms of Appointment."
- Confirmation of your academic status and that it is commensurate with the opportunity for which you have been selected. This information will need to be submitted each academic term. Confirmation may include one of the following:
  - Letter from an authorized academic department official confirming that you are currently enrolled
  - Copy of your official transcript

For details on how to comply with this requirement, [click here](#).

## Expectations and Requirements

**Contact Information:** You must have a valid email address during the award period. An emergency contact is also required. You are responsible for providing ORISE with updated contact information.

**Issues or Concerns:** To raise an issue or concern while you are in your appointment, please contact your ORISE representative.

**Disabilities:** Disabilities that require special consideration may be brought to our attention at the time you accept this appointment.

**Status as a Non-Employee Participant:** You are considered a participant in an educational program and will not enter into an employer/employee relationship with your program sponsor, ORISE, DOE, or any other office or agency. As a non-employee participant, you do not earn leave, nor are you entitled to workers' compensation benefits.

You should represent yourself as a participant in an education program sponsored by U.S. Department of Energy (DOE) in all presentations, publications, and other public communications. You should never present yourself as a representative of the federal government or your host facility. You are participating in the assigned program solely for the educational benefit it provides. Your assigned project should not include activities that are reserved for federal employees nor should it require you to perform inherently governmental functions such as: provide expert advice; supervise, mentor, 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. If you have concerns about the appropriateness of your assigned project, please contact your ORISE program representative immediately.

**Attendance:** Program guidelines require that you establish and maintain your assigned schedule with your mentor during your appointment (either full- or part-time, as specified in your appointment letter), except for normal holidays recognized by your facility or other times when your facility is officially closed. For the duration of your appointment, you must commit yourself to continuous resident participation and avoid obligations that will interrupt your appointment. While you do not earn leave during your appointment, occasional absences may be permitted by your program. It is imperative that you contact ORISE immediately with any expected interruptions.

**Media Release:** By accepting this offer of appointment, you may give your permission for ORISE to photograph, videotape, or obtain audio files representing your image, likeness, thoughts or opinions, as part of the programs ORISE operates for its customers. ORISE will maintain possession of all associated negatives, digital, video, and/or audio files, film, CDs, photographic prints, etc.; and will maintain all rights to these images and other files; and may use, at our sole discretion and for a period of time determined by us, in future materials, such as press releases, web sites, brochures, booklets, reports, and exhibits, promoting ORISE and its programs.

**Host Facility Policies:** You are expected to comply with all policies, procedures and rules of conduct established by your program sponsor, including those regarding professional conduct, publishing, and facility access.

**Expenses:** Unless otherwise noted, you are responsible for expenses associated with your appointment that are not covered by your sponsor. Some of these expenses may need to be paid up front before you receive your first stipend check.

**Acknowledgment on Publications:** All published reports, journal articles, or professional presentations that are based on the activities conducted during your appointment shall carry an acknowledgment such as the following:

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*"This research was supported in part by an appointment with the Energy Efficiency & Renewable Energy (EERE) Robotics Internship Program sponsored by the U.S. Department of Energy (DOE), EERE Advanced Manufacturing Office (AMO). This program is administered by the Oak Ridge Institute for Science and Education (ORISE) for the DOE. ORISE is managed by ORAU. All opinions expressed in this paper are the author's and do not necessarily reflect the policies and views of DOE, ORAU, or ORISE."*

**Professional Travel and Training:** All travel (domestic and foreign) related to or in support of your fellowship appointment must be pre-approved. The process for requesting travel approval and travel expense reimbursement, required forms and job aids to complete forms can be found at <https://orise.orau.gov/travel-central/>.

**Progress:** You are required to make satisfactory progress in your assigned project.

**Surveys and Future Inquiries:** You will be required to complete program surveys during your appointment. The data collected through the surveys is used to improve the program. Failure to respond to these surveys may affect your stipend payment. Also, by accepting this appointment, you agree to respond to all future inquiries by ORISE concerning your participation in the program.

**Notification of Change in End Date:** If you are planning to leave your appointment before the indicated ending date, you are responsible for directly informing your ORISE program contact (in addition to your mentor and host facility) as soon as possible.

**Return of Erroneously Paid Funds:** Any payments you receive for periods you were not authorized to participate in the program or reimbursements you receive for which you are subsequently determined to not be entitled must be returned in full.

**Future Employment:** No commitment with regard to future employment by your sponsor, ORISE, DOE, or any other office or agency should be inferred or expected by the offer or acceptance of this appointment.

**Verification of Enrollment:** You must remain a student in good standing in a degree-granting program at your college or university throughout the duration of your appointment. Confirmation may include the following: a letter from an authorized academic department official confirming that you are currently enrolled or a copy of your official transcript.

In order to document the effectiveness of the program, you must fulfill the following requirements:

- Feedback Survey
- Final Report
- Poster Session Participation/Oral Presentation

The feedback survey, report and presentation are due by your appointment end date. Your final stipend payment will not be paid if your report and feedback forms not submitted within 30 calendar days of your appointment end date.