**Position Summary:**

**Title:** Graduate Assistant  
**Department:** Computer Science  
**Hours per Week:** 10 hours/week

**Location:**  
- X Portland  
- Gorham  
- LAC  
- Online/Distance  

**Duration:**  
- X Full Academic Year  
- Fall Semester  
- Spring Semester  
- Summer Semester

**Total Stipend:** 4500  
**Scholarship Amount:** 3000 (in-state) / 3000 (out-of-state)  
**Monthly Stipend:** 500

**Supervisor Name:** Bruce MacLeod  
**Supervisor E-Mail:** macleod@maine.edu  
**Supervisor Phone:** (207) 780-4285

**Position Details:**

**Statement of Job and Essential Functions:**

Deep learning methods have played as state-of-the-art strategies for a list of medical image analysis tasks. However, there are several fundamental challenges that hold deep learning methods to obtain their full potential in the medical domain. One can see that they often need a large column of labeled training data to achieve better accuracy and precision over traditional ML methods. This could lead to a list of problems in clinical settings, including but not limited to:

1. Annotating medical data/images requires significant medical knowledge which makes the annotation process expensive and very time consuming.
2. Providing a large amount of annotated/labeled data in a clinical setting is basically challenging due to high privacy-preserving standards in the healthcare community.
3. Medical data/images are often imperfect due to heterogeneity in medical imaging devices and sensing technologies.
4. Human-base annotation could be another source of error.

A graduate research assistant is now needed to design, develop, train, validate, and test few-shot learning pipelines in medical image analysis.

**Supervisory Responsibilities:**

Potential benefits for the GA include but not limited to:

- Developing a mentoring relationship with faculty member(s).
- Working on a real-world and highly demanded AI application. It opens the door to the GA fellow to pursue their professional career in practical AI.
- Working collaboratively in a multidisciplinary team of professional faculty members and graduate research assistants. It helps the students to learn from their experiences in a collaborative fashion.
- Learn how to write and develop an IRB (Institutional Review Board) to conduct well-organized research that includes human subjects.
- Networking with professional communities.
- Participating in educational/training opportunities provided by the departments.
• The team tend to publish their research findings in prestigious conferences and/or journals. Thus, the fellow will learn how to write and publish scientific papers.

**Budget Responsibilities:**
The GA will work 10 hrs/week.

**Public and Professional Activities Related to Job Performance:**
- Work with publicly available datasets.
- Developing, training, validating, and testing deep learning methods.
- Programming.

**Internal Contacts**
Bruce MacLeod, Ph.D. (macleod@maine.edu)

**External Contacts**
Bruce MacLeod, Ph.D. (macleod@maine.edu)

**Knowledge, Skills, and Abilities:**
- Deep learning
- Python programming, PyTorch
- Computer Vision

**Required Qualifications:**
- Master Student at USM
- Programming skills

**Preferred Qualifications:**
- Programming with Python
- Deep learning
- Computer Vision

**To Apply:**
Submit your resume and cover letter via email to Bruce MacLeod (macleod@maine.edu).