Research Questions

I. Pre-Interview Questions：Personal Information:

1) Basic information of the individual:

Name of the interviewee/Gender/Age/ Education:

2) Work experience of the interviewees:

The name of the company where they work/their position and responsibilities/ the country (and city) where the company is located

3) The types of projects that the interviewees participated in: for example, the task of recognizing lane lines in autonomous driving tasks

① What is your team composition?

② Can you describe the developing process of evolving the DL systems?

II. Research Question about testing in the evolution process of deep learning systems;

RQ1: What challenges have developers encountered when testing evolving deep learning systems?

-Challenge

RQ2: What solutions do developers employ to tackle the challenges to conduct to address the challenges in testing evolving deep learning systems?

-Solution

RQ3: In order to conduct more effective testing during the evolution of deep learning systems, what kind of additional support do developers need to facilitate their testing activities?

-Support

III. Interview Questions

RQ1：What challenges have developers encountered when testing evolving deep learning systems?

1) During the evolution of deep learning systems, to guarantee the quality of Deep Learning Systems, what are the specific testing issues and challenges you usually face?

2) How do these challenges differ from those encountered in traditional, non-deep learning systems?

RQ2: What solutions do developers employ to tackle the challenges to conduct to address the challenges in testing evolving deep learning systems?

1) In the evolution process of deep learning systems, how do you conduct testing in the face of the aforementioned challenges?

2) Compared to the evolution process of traditional software, what are the unique challenges of these testing methods during execution?

3) Have you ever faced situations where, despite the developers' assessment that a deep learning system is usable after evolution, faults unexpectedly occurred and had led to serve consequences?

4) If so, after discovering these faults, what measures do you usually take to detect, mitigate, or fix them? Can you share some specific examples?

5) How frequent is the evolution of deep learning systems?

6) In the frequent evolution process, how do you efficiently manage test cases to ensure that testing covers all aspects and functionalities of the system's evolution? (We can talk about

test case management, construction, generation, reuse, collection, etc.)

RQ3: In order to conduct more effective testing during the evolution of deep learning systems, what kind of additional support do developers need to facilitate their testing activities?

1) Is there a need for specific tools to assist in the testing process during the evolution of deep learning systems?

2) Are there any disadvantages associated with these tools, or are there aspects that could potentially be improved upon?

3) To better support testing Deep Learning Systems during evolution, what types of tools or technologies do you believe are still needed? Please elaborate.