

## Assignment #1

### *Quantum Workforce Analysis*

Discussion “Due” in class 2024.08.21  
Analysis Due 11:59 PM 2024.08.28

#### **Purpose:**

The purpose of this assignment is to familiarize yourself with the state of the QISE industry and workforce needs, and to sharpen your understanding of and expectations of your own goals within that framework.

#### **Preparation:**

1. Download the reading material: *Preparing for the quantum revolution: What is the role of higher education?* by M.F.J. Fox, B.M. Zwickl, and H.J. Lewandowski; Phys. Rev. Phys. Educ. Res. **16** 020131 (2020), including the supplemental material. The DOI (digital object identifier) is 10.1103/PhysRevPhysEducRes.16.020131. Your ability to locate professional publications is a skill we want you to develop, even if you have not done this earlier. If you have difficulty finding this paper, contact Martin or one of your peers.
2. Read both the primary paper *and* the supplementary material.
3. Be prepared for a group discussion in class on Wednesday 2024.08.21.

#### **Submission:**

Following the class discussion, prepare a written analysis of the paper that addresses the following points. This analysis does not need to be extensive; approximately one paragraph (of appropriate length, however—not single sentences!) addressing each point separately should be sufficient, . It is also appropriate here to use the first-person voice. Your analysis is to be submitted as a PDF document through Canvas by 11:59 PM Wednesday 2024.08.28. Typeset using “full justification” (even left *and right* columns, as in this document)!

#### **Submission Contents (label and separate each section appropriately):**

- A. The paper mentions several activities undertaken in QISE companies (Section I.A, #1-5). Which activities did you expect to see, and which were you surprised to see included? Explain, briefly.
- B. The authors discussed the possible “sampling effects” due to their sampling methodology (Section II.A). Discuss, briefly, the possible causes and resulting bias of the low response rate in “facilitating technology.”
- C. From the Supplemental Material, identify your interest in at most two categories of S.I. (Skills needed by job, p. i). Why are you interested in them? Do they represent areas of existing skills for you, or areas you’d want to expand your knowledge of?
- D. From the Supplemental Material, identify your interest in at most two categories of S.II. (Skills valued from degree subjects and levels, p. vii). Why are you interested in them? Do they represent your current level of study, or the level of study you aspire to?
- E. From the Supplemental Material, identify and discuss the sections of S.III. (Training provided by companies by job type, p. xii) relevant to your own training. How much of the training do you already have, whether by courses or professional experiences?
- F. From the Supplemental Material, identify and discuss specific company responses in section S.V. (Courses and their relationship to skills valued by the quantum industry, p. xxi, Tables S.I through S.VI) relevant to your own experiences and career goals. Note that it is not possible to cover every topic in our four courses, 4678-4681/5678-5681; our goal is to provide a reasonable sampling of topics listed in these tables.