

Quantum Literacy Education-The Key to Cybersecurity

Drs. Tim Akers, Kevin Peters, Birol Ozturk, Justin Bonny, Yuejin Li, Tracy Rone, Paul Wang, and Others

Quantum Literacy in the Quantum Age: *Identifying and Training Quantum Literate Warfighters with Innovative Education Strategies*

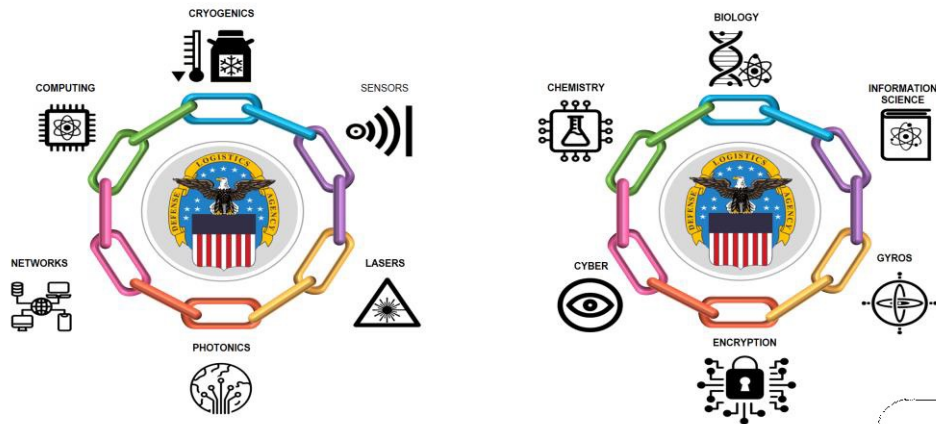


<https://epjquantumtechnology.springeropen.com/articles/10.1140/epjqt/s40507-021-00113-y/figures/1>

2 *Quantum is Interdisciplinary*

Computer Scientists, Biologists, Physicists, Mathematicians, Electrical Engineers, STEM Educators, Chemists, other Disciplines

Quantum Supply Chain for Defense Logistics Research, Education and Training

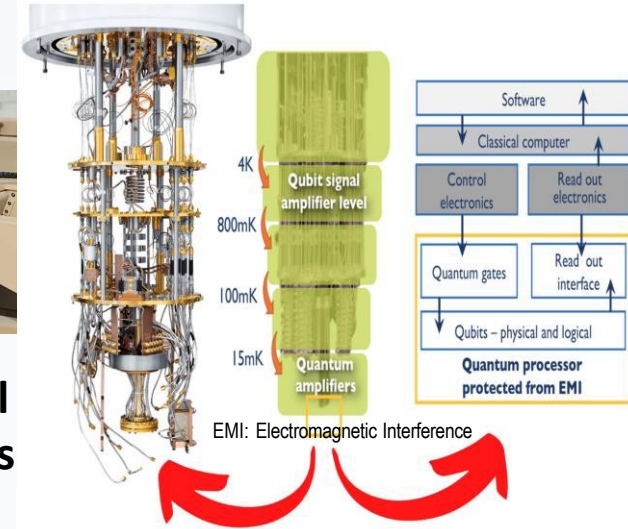


www.morgan.edu

3 Education and Training



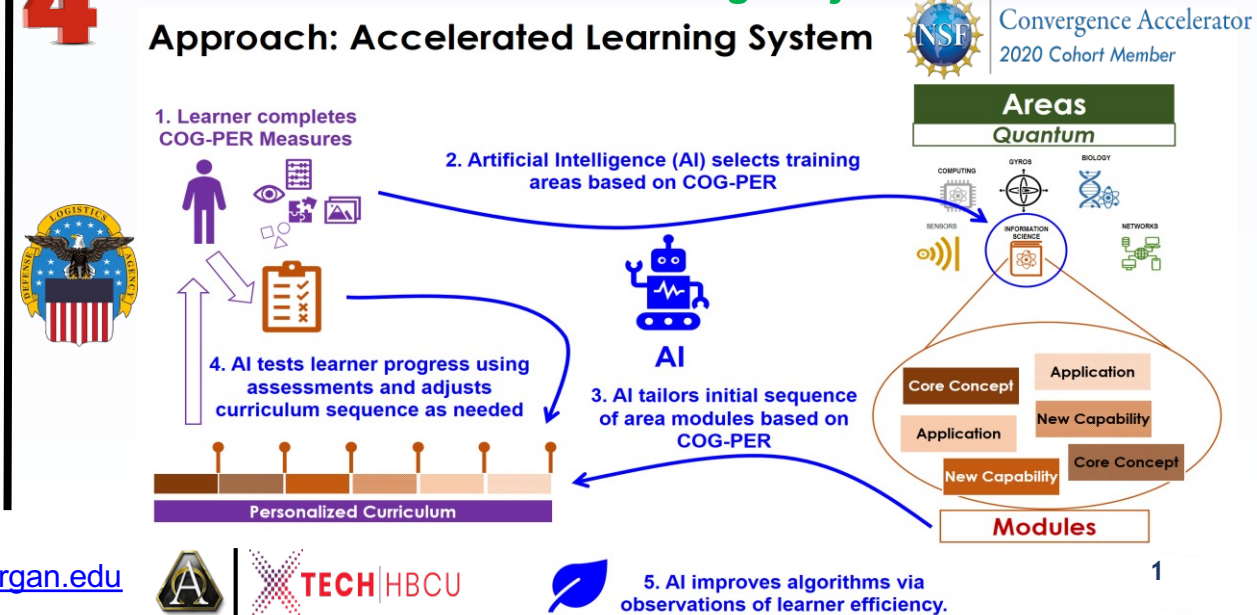
Army Technical Training Schools



http://www.yole.fr/Quantum_Technologies_Overview.aspx

Past Performance and Pending Projects:

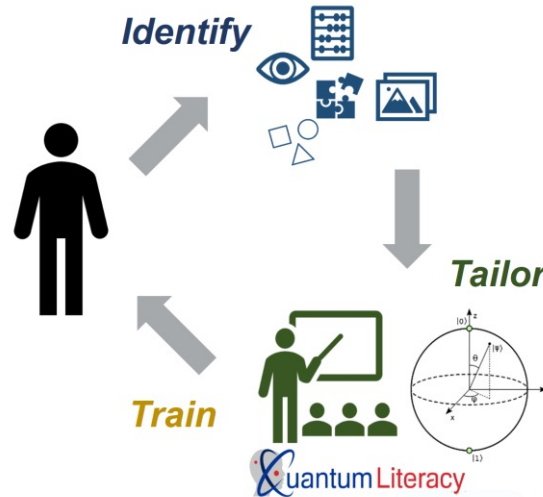
Approach: Accelerated Learning System



Quantum Literacy Education

Quantum Literacy

- **Objective 1:** *Identify cognitive-perceptual predictors* of quantum-readiness to select warfighters to receive training.
- **Objective 2:** *Develop accelerated learning* system framework that tailors quantum literacy curriculum to warfighters through rapid learning.



3 Scientific Merit

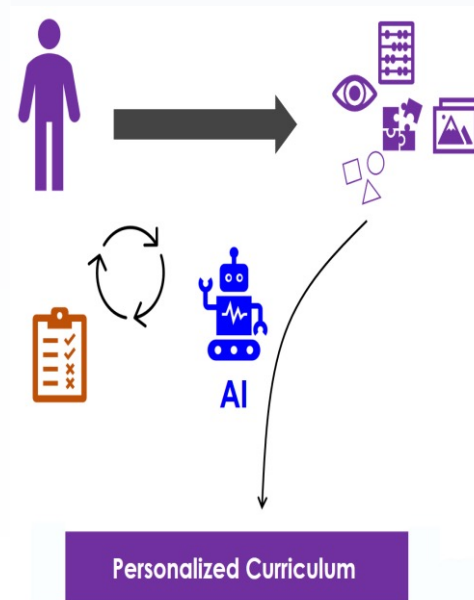
- Addressing gaps in cognitive-perceptual (COG-PER) correlates of quantum literacy
 - Development of quantum literacy assessment
 - Flexible, modular framework for training Quantum areas
 - Use of AI to maximize efficiency and accelerate quantum learning
 - Using measures that **do not** rely on completed STEM courses can allow for a more diverse range of quantum ready individuals to be identified
- Army Mission**
- Develop the capability to rapidly identify a capable warfighter and train them to be fluent in basic concepts in science and technology areas, such as quantum theory



- Use **AI-powered** system to accelerate learning by tailoring content and curriculum to learner via COG-PER measures and performance on psychometrically-valid assessments

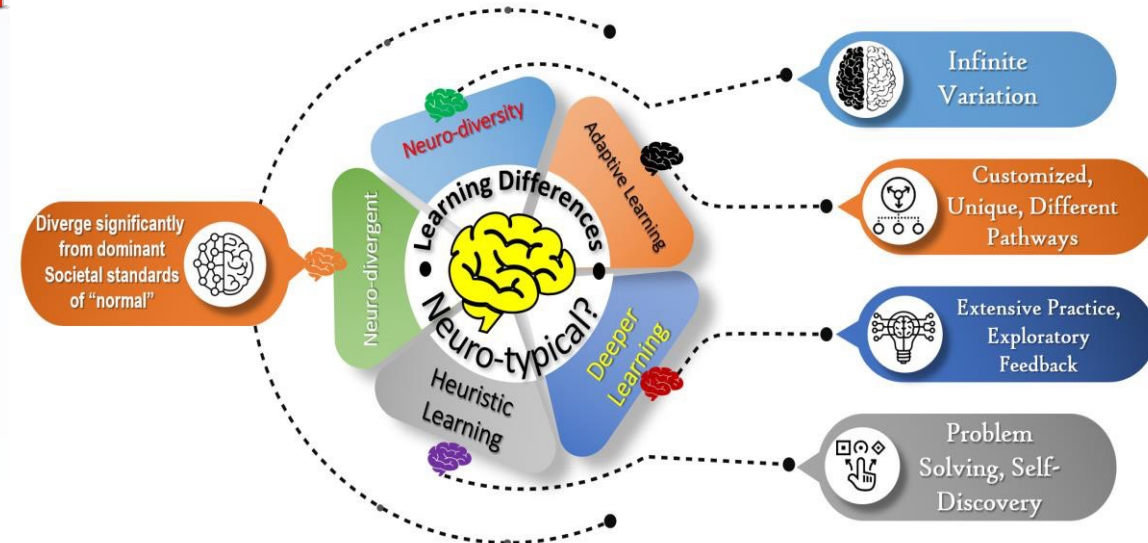
- Focus on logic of quantum concepts and applications
- Content delivered using visuospatial interactive materials (e.g., running a simulation of a quantum concept)
- Machine learning used to improve AI curriculum selection and content delivery to learners

- **Objective** is to train the learner to meet proficiency standards with minimum learning time possible



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Deeper Learning Influencers



Quantum Literacy Education



Quantum Supply Chain - Cybersecurity Logistics

In a world increasingly reliant on digital infrastructure, the present approach to supply chain security and management poses significant national security risks, particularly as we strive to secure emerging quantum information ecosystems. This precarious reality necessitates a fundamental shift in our thinking approach, prioritizing cross-industry collaboration, specifically amongst the scientific community, academia, and the cybersecurity arena. To successfully navigate this complex landscape, we must explore and implement new policies, governance strategies, and leadership and quantum literacy models that encourage these often-opposing communities to unite for the broader good of humankind, rather than operating within the confines of individual budgets or allegiances. This collaborative approach will enable the introduction of quantum innovation concepts into the national security arena with a clear understanding of the associated cybersecurity risks, supply chain issues, performance improvements, quantum literacy education, and natural language abilities.