Project Title: Advanced Training Technology Development and Application for Industrial Skill

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Thrust Area: Design Education

Need and Industrial Relevance
- In 2010 US companies spent $52.8 billion on employee training expenditures alone
- Companies often rely on the development of complex skillsets that require the acquisition that require well-designed training to be learned
- AR, VR, and Kinesthetic training technologies can be used to decrease training time while increasing the acquisition of skills
- Dr. Stone and his team have a history of developing highly effective AR/VR/KN training technologies.

Approach and Methods
- ID task that are common to/reshared by our industrial partners
- study the task(s), current training practices and actual work practices of those employees during and after their training
- develop cognitive models for the task studies and determine how the training ultimately is translated into skill acquisition
- utilize an extended version of the AMID method to design usable heuristics and actual AR/VR/KN training technology
- conduct controlled lab experiments
- conduct field trials at our industrial sponsors facilities

Outcome/Deliverables
- documentation and dissemination of scientifically supported design principles that can be used to develop a wide variety of advanced training technologies
- AR/VR/KN devices will be developed demonstrated and made available for use by our industrial sponsors
- sponsor companies will gain a virtually immediate benefit from the training interventions included in the experimentation phase of this project

Objectives
- The goal of this proposed work is to demonstrate the predictive validity of successful real world training through the use of advanced VR/AR/KN training technologies that are developed using scientifically supported principles/heuristics.

Impact
- This project will provide a mechanism to reduce production costs related to training
- This project will produce scientifically supported principles/heuristics for design that will be applicable specifically to the development of cutting edge training technologies
- This project will answer scientific questions related to cognitive engineering, HCI, and HPE

Project Duration
(Tasks and Timeline)

Proposed Budget
- Total Budget: 56,000 USD
  - 56k from year one, 16.5k one graduate student worker for 6 months, 4k Experiments/travel, 3k AR/VR/KN development/parts, 5k Hourly student support, 4k PI support)
- Total Budget with optional 6 month extension: 94,500 USD
  - 33k one graduate student worker for 12 months, 4k Experiments/travel, 6k AR/VR/KN development/parts, 5k Hourly student support, 8k PI summer support)