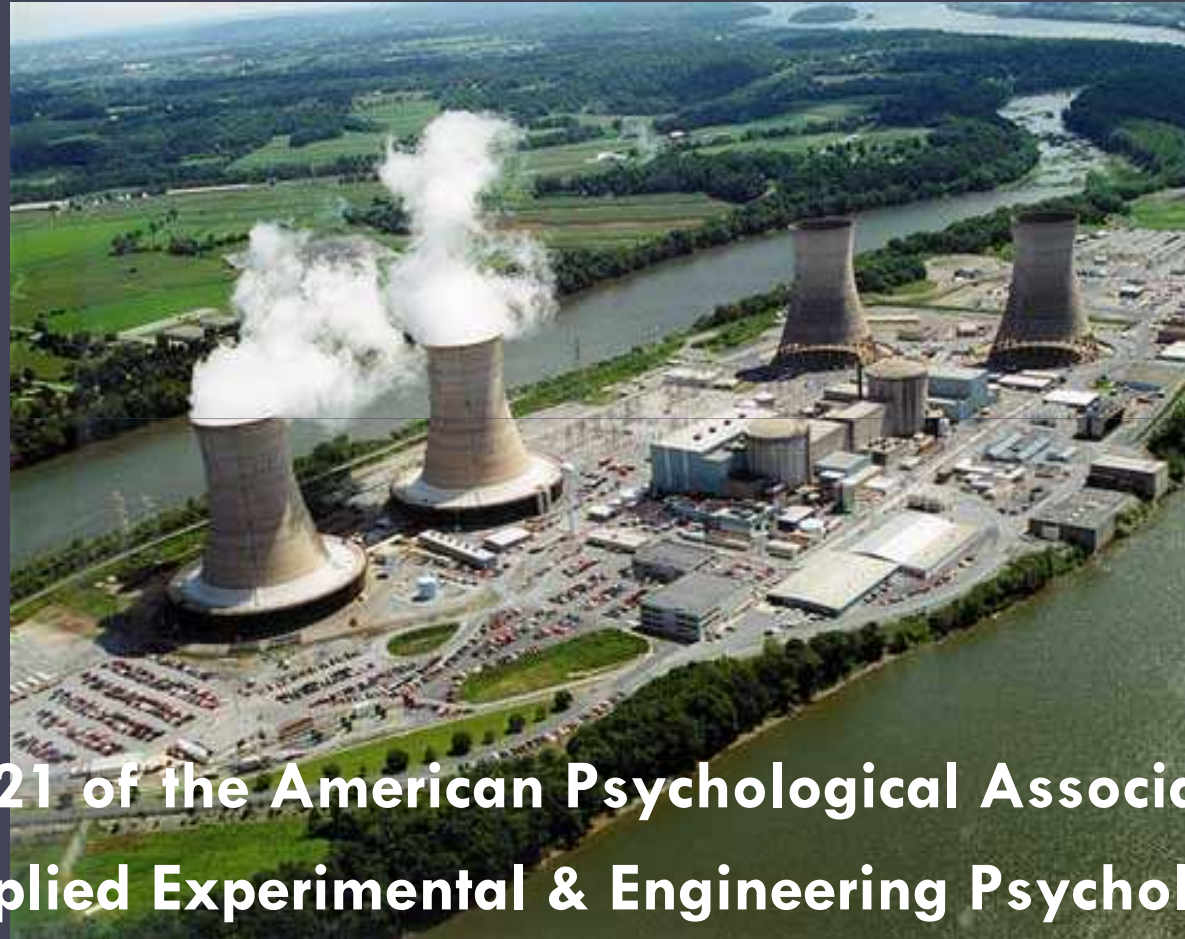


# APPLYING PSYCHOLOGY TO REAL WORLD PROBLEMS



**Div 21 of the American Psychological Association:  
Applied Experimental & Engineering Psychology**

Francis T. Durso, Patricia R. DeLucia, & Kerstan Mork, *Texas Tech University*

# Focus on people

- How loud can your music be before you damage your hearing?
- How do you know where to push on a door to enter a building?
- At what room temperature are people most productive?
- What's the best way to study?
- How high should your desk chair be?
- Why are surgical gowns green?
- What's worse—drinking and driving or driving while on a cell phone?



# Save people



Union Carbide Power plant:  
Bhopal India



USS Vincennes

- A plane runs out of gas while circling an airport for an hour
- A woman is awake during surgery
- A warship mistakes a airliner for a fighter plane and shoots it down
- George Weller runs over people at the farmer's market
- Biased lineup leads eyewitnesses to pick the wrong man
- Unreliable gauges are ignored

# Design technology for people

- Traffic systems: from signs to maps
- Cars: from brake lights to GPS
- Computers: from keyboards to websites
- Aviation: from air traffic control to unoccupied aerial vehicles
- Military: from night vision goggles to remote deployment systems
- Office: from chairs to room lights



# History



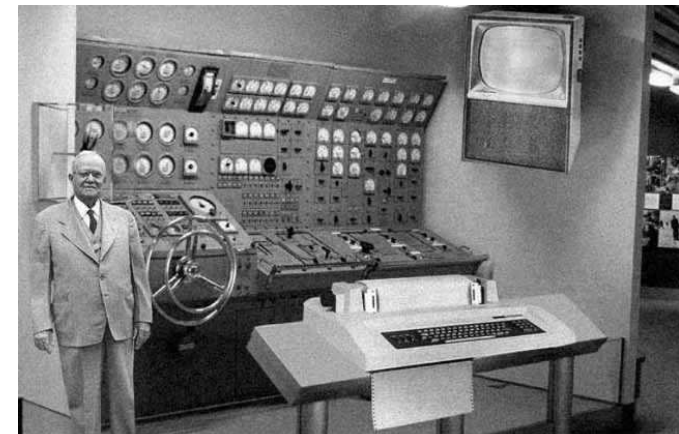
- Efficiency experts

- World War II—1940s



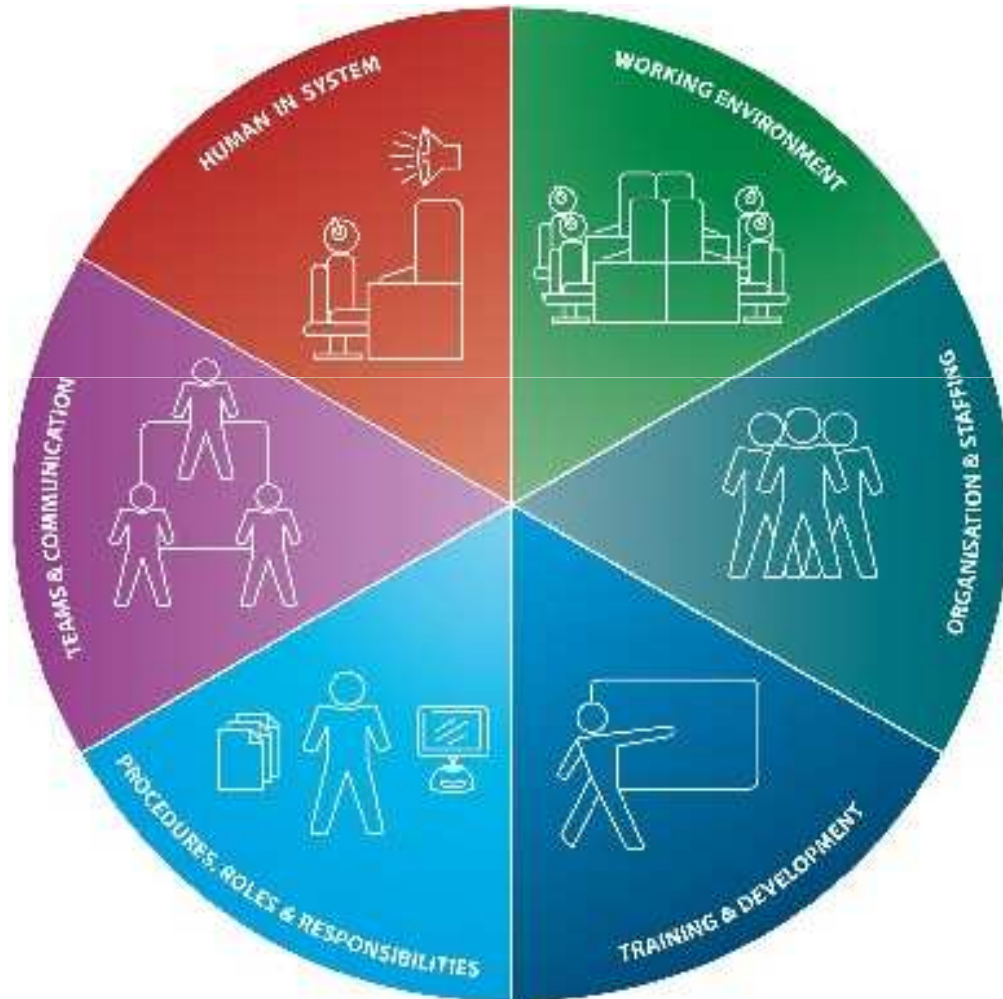
- Space exploration—1960s

- Computers—1980s



*Scientists from the RAND Corporation have created this model to illustrate how a "home computer" could look like in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 50 years from now scientific progress is expected to solve these problems. With teletype interface and the Fortran language, the computer will be easy to use.*

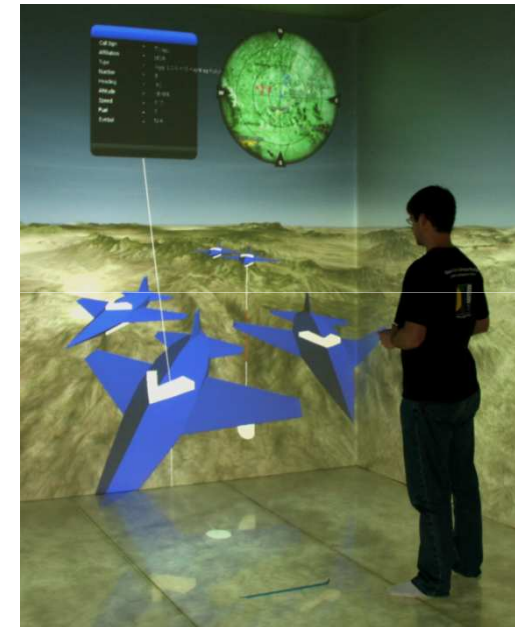
# Who are we?



- Engineering psychologists, sometimes called applied experimental or human factors psychologists, understand the abilities and limits of being human
- They apply that knowledge to improve the systems and technologies with which we work

# Today's areas

- Forensics & the Law
- Computers & the Net
- Surface transportation
- Education & Training
- Human performance
- Perception & Cognition
- Test & Evaluation
- Systems & Macroergonomics
- Augmented cognition
- Individual differences
- Aerospace
- Environment
- Safety
- Health care
- Virtual reality
- Product design
- Industrial ergonomics
- Communications & Teamwork



Iowa State Virtual Reality

# Interests & Skills you need



- ❑ Enjoy conducting research focused on people
- ❑ Be comfortable with math and science
- ❑ Enjoy learning more about how people think and work
- ❑ Be interested in technology
- ❑ Have good communication and critical thinking skills
- ❑ Be a good team player

# Current Issues & Careers



Predator UAV

- ❑ Hundreds of people a day die from preventable medical errors
- ❑ By 2025, air traffic will triple
- ❑ People are becoming more reliant on automated aids and smart machines
- ❑ Computer usage increases each year

- ❑ Work in industry, government, academic settings
- ❑ Secure a job with a MA or PhD
- ❑ Earn a starting salary of 60-80K
- ❑ Leadership and management options

**Got  
Career?**

# Conclusion

- Focus on people
- Save people
- Design technologies for people
- Work on a diverse selection of projects
- Apply a diverse set of skills
- Achieve an exciting and lucrative career
- Fill a growing need in all employment sectors



# Web Sites

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- <http://www.apa21.org>
- [www.hfes.org](http://www.hfes.org)
- <http://www.iea.cc/>
- <http://www.hfes.org/web/EducationalResources/educresourcesmain.html>
- <http://www.hf.faa.gov/Webtraining/index.htm>
- <http://www.baddesigns.com/>
- <http://www.aviation.uiuc.edu/institute/acadprog/epJP/humFacsites/hotlist.html>

# Publications



- Human Factors
- Journal of Experimental Psychology: Applied
- Ergonomics and Design
- Transportation Research Part F
- International Journal of Aviation Psychology
- Human-Computer Interaction