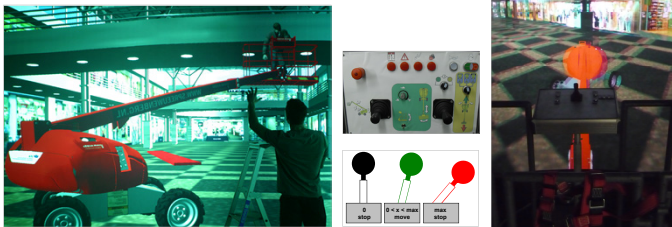


Virtual Reality in OSH for Product Safety and Usability

Peter Nickel, Andy Lungfiel, Birgit Naber, Michael Hauke, Michael Huelke

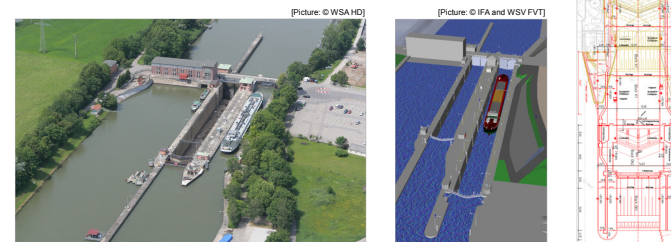
Usability and MEWP

- Usability evaluation of safeguards in context of use
 - Key hazard is crushing between rail and obstacle
 - Accident scenarios (avoid hazardous situations)
 - Work scenarios (avoid defeating safeguards)
 - DGUV expert-committee 'Trade and Logistics', German Social Accident Insurance Institutions



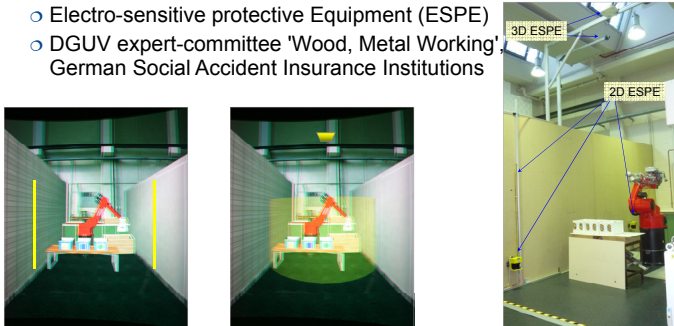
Risk assessment

- Evaluation across the product life cycle
 - Development of a planning model in VR
 - Inspection of future river lock by interdisciplinary team
 - Camera positioning for control centre monitoring
 - German Social Accident Insurance Institution, Federal Waterways and Shipping Administration



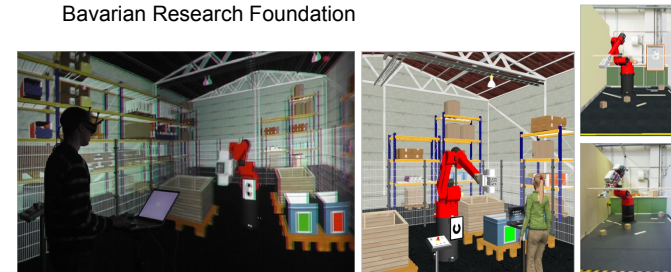
Safety concepts and ESPE

- Evaluation of 2D/3D danger zone indications
 - Safety and ergonomics design requirements
 - Electro-sensitive protective Equipment (ESPE)
 - DGUV expert-committee 'Wood, Metal Working', German Social Accident Insurance Institutions



Human-Robot-Interaction

- Systematic experimental human-system Interaction
 - External validity of VR simulations
 - HF/E requirements for safe H-R collaboration
 - German Social Accident Insurance, Bavarian Research Foundation



Poster presentation on the
7th International Conference on Safety of Industrial Automated Systems (SIAS2012),
October 11-12, 2012, Montréal, Canada.

List of abbreviations:

- 2D/3D: two dimensional / three dimensional
- BGHM: German Social Accident Insurance Institution for the woodworking and metalworking industries
- BGHW: German Social Accident Insurance Institution for the trade and distribution industry
- DGUV: German Social Accident Insurance
- ESPE: electro sensitive protective equipment
- HF/E: human factors and ergonomics
- H-R: human-robot
- IFA: Institute for Occupational Safety and Health of the German Social Accident Insurance
- MEWP: mobile elevating working platform
- OSH: occupational safety and health
- SUTAVE: Safety and Usability Through Applications in Virtual Environments
- UK Bund: German Social Accident Insurance Institution of the Federal Government
- VR: virtual reality
- WSV: German Federal Waterways and Shipping Administration