

A large, centered version of the vitawin logo, with "vita" in red and "win" in blue, flanked by red and blue lines.

Virtuell-augmentiertes Training für die **Aus-** und **Weiterbildung** in  
der interprofessionellen Notfallversorgung



- **Goal:** To develop a haptic augmented and virtual multiuser training environment for future emergency paramedics and emergency care nurses
  - Clinical VR-Scenario with burned patient
  - Collaborative Virtual Reality & Serious Games
  - Integration of simulation dummy in a virtual training environment
- **Sponsor:** BMBF (VRARBB)
- **Duration:** March 2019 - February 2022
- **Grant amount:** 2.4 M. €
- [www.vitawin.info](http://www.vitawin.info)
- Previous project EPICSAVE (2016-2019) [www.epicsave.de](http://www.epicsave.de)

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and Research

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# General information

- ViTAWiN is funded by the Federal Ministry of Education and Research as part of the **Virtual and Augmented Reality (VR/AR) in Vocational Education and Training** program
- The project is led by an interdisciplinary consortium, which develops, tests and evaluates a **multi-user Virtual Reality (VR) and Augmented Reality (AR) simulation environment**
- The project is aimed at teachers and learners and addresses **interprofessional education needs in two health professions**
  - Vocational emergency paramedic training
  - Further training of emergency care
- **Virtual haptic training and learning in the field of emergency medicine** should be as realistic as possible, address human factors and the **collaboration of different disciplines and professions**, and at the same time be without harmful consequences in case of malpractice
- ViTAWiN is based on a VR training environment for emergency paramedic training already developed in the EPICSAVE ([www.epicsave.de](http://www.epicsave.de)) project

# User-centered approach to development

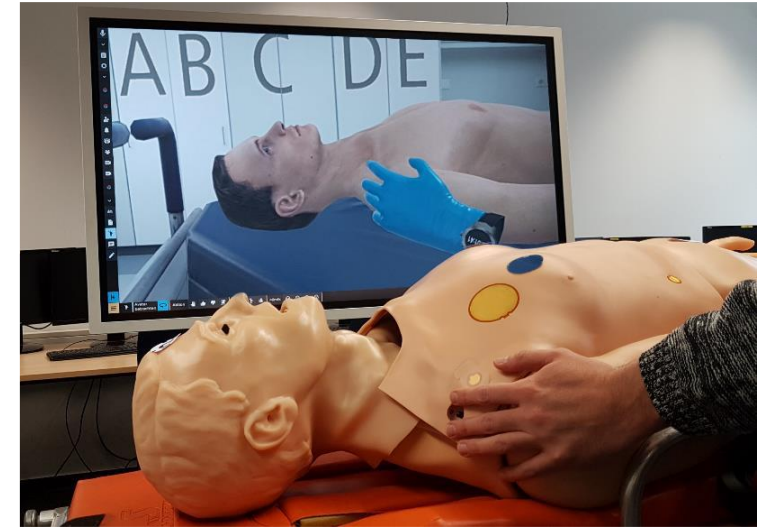
- The continuous involvement of educators and students in the development process is a top priority in the project
- Results of educational and usability evaluations flow directly into the technical development within a user-centered and iterative approach,
- Relevant aspects for a sustainable acceptance of technology, such as usability and an intuitive user interface are especially considered



Advisory Board Meeting February 2021 at TriCAT Spaces: Demo Presentation & Project Planning.

# Haptic integration & social VR

- A simulation dummy is integrated in a VR-environment, providing haptic augmentation in a mixed-reality approach
  - supports experiencing dynamic visual representation of virtual patients and their symptoms as "tangible"
  - The physical contact with a patient is a relevant social aspect for emergency paramedics and nurses in emergency care
- **Social VR: Emotional reactions of a patient**
  - Emotional reactions in facial expressions or gestures are important factors to correctly assess a clinical scenario
  - Typical expressions are implemented to create a more interactive and realistic experience
  - E.g., anxiety, pain, relief





# Clinical scenario

- **Clinical scenario with a burned patient**
  1. Preclinical care provided by the emergency paramedics
  2. Simulation of an ambulance ride to the clinic
  3. Interprofessional handover of the patient
  4. Clinical care in the trauma room by the emergency nurses
- Equipment, bags and trauma room are developed based on their real-life counterparts, so that emergency paramedics and nurses find themselves in familiar surroundings



Preclinical care



Clinical care

# Conference talks and publications (<https://vitawin.info/publikationen/>)

- Lerner, D., Pranghofer, J., Franke, A. (2020). **Der Einfluss des Präsenzerlebens auf die Lern- und Trainingseffekte in einer Virtual-Reality Simulationsumgebung.** Pädagogik der Gesundheitsberufe, 7(1), 17–25; die Forschungsdaten zu diesem Beitrag wurden publiziert unter <http://dx.doi.org/10.24406/fordatis/6>
- Luiz, T., Lerner, D., Schnier, D. (2020). **Virtual Simulation Environment for Medical Training.** In: ERCIM NEWS Special theme: Educational Technology 2020, 120: S.26-27.
- Lerner, D., Luiz, T. (2019). **Nah an der Realität. Lernen mit virtuellen Patienten.** Intensiv 27 (2), 64–69. DOI: 10.1055/a-0821-3183
- Schild, J., Flock, L., Martens, P., Roth., B., Schünemann, N., Heller, E., Misztal, S., **EPICSAVE Lifesaving Decisions – a Collaborative VR Training Game Sketch for Paramedics.** Cond. accepted at IEEE Virtual Reality, Osaka, 2019
- Lerner, D., Wichmann, D., Wegener, K. (2019). **Virtual-Reality-Simulationstraining in der Notfallsanitäterausbildung.** retten! 2019; 8(04), 234–237. DOI: 10.1055/a-0820-8614
- Lerner, D., Luiz, T., Schild, J., Wegner, K., Pranghofer, J., Franke, A., **Teambasiertes Simulationstraining in einer immersiven 3D-Virtual-Reality-Umgebung: das Projekt EPICSAVE,** In: Pädagogik der Gesundheitsberufe, 03/2018, 5. Jahrgang, hpsmedia, Nidda.
- Schild, J., Lerner, D., Misztal, S., Luiz, T. **EPICSAVE – Enhancing Vocational Training for Paramedics with Multi-user Virtual Reality.** Proc. of the International Conference on Serious Games and Applications for Health (SeGAH 2018), IEEE, 2018.
- Buhler, H., Misztal, S., Schild, J. **Reducing VR Sickness through Peripheral Visual Effects.** In Proc. of IEEE Virtual Reality 2018.
- Schild, J., Misztal, S., Roth, B., Flock, L., Luiz, T., Lerner, D., Herkersdorf, M., Wegner, K., Neuberger, M., Franke, A., Kemp, C., Pranghofer, J., Seele, S., Buhler, H., Herpers, R. **Applying Multi-user Virtual Reality to Collaborative Medical Training.** In Proc. of IEEE Virtual Reality 2018
- Schild, J., Lerner, D. **Mehrbenutzer-Virtual Reality (VR) im immersiven Classroom für die berufliche Bildung.** LEARNTEC 2018.
- Lerner, D., Luiz, T., Franke, A., Pranghofer, J., Blum, E., Gorodilova, L., Kemp, C., Runggaldier, K., Neuberger, M., Schild, J., Seele, S., Herkersdorf, M. (2017): **Serious Games und Virtual Reality in der Ausbildung von Notfallsanitätern.** In: Anästhesiologie & Intensivmedizin 2017; Supplement Nr. 5, 58. Jahrgang, S. S112–S113 [Abstract Posterbeitrag DINK 2017].
- Seele, S., Misztal, S., Buhler, H., Herpers, R., Schild, J. **Here’s looking at you anyway! How important is realistic gaze behavior in co-located social virtual reality games?** ACM SIGCHI Annual Symposium on Computer-human Interaction in Play (CHI PLAY) 2017.
- Wegner, K., Seele, S., Buhler, H., Misztal, S., Herpers, R. & Schild, J. **Comparison of two Inventory Design Concepts in a Collaborative Virtual Reality Serious Game.** ACM SIGCHI Annual Symposium on Computer-human Interaction in Play (CHI PLAY) 2017.
- Lerner, D., Luiz, T., Schild, J., Wegner, K., Franke, A., Neuberger, M., Pranghofer, J., Kemp, C., Blum, E., Gorodilova, L., Schneider, F., Grünauer, P., Herkersdorf, M. **Das Projekt EPICSAVE –Darstellung der ersten Pilotierung.** Interdisziplinäres Symposium zur Simulation in der Medizin InSiM 2017. Posterpreis 2. Platz
- Luiz, T., Lerner, D., Schild, J. **Das Projekt EPICSAVE – Serious games und virtuelle Welten in der Ausbildung von Notfallsanitätern- ein erster Zwischenbericht.** 14. Wissenschaftliche Arbeitstage Notfallmedizin WATN 2017.
- Lerner, D., Luiz, T., Franke, A., Pranghofer, J., Blum, E., Gorodilova, L., Kemp, C., Runggaldier, K., Neuberger, M., Schild, J., Seele, S., Herkersdorf, M. **Serious Games und Virtual Reality in der Ausbildung? Das Projekt „EPICSAVE“!** Deutscher Interdisziplinärer Notfallmedizin Kongress DINK 2016.
- Schild, J., Seele, S., Herkersdorf, M., Lerner, D., Luiz, D., Franke, A., Pranghofer, J., Blum, E., Gorodilova, L., Cemp, K., Neuberger, M. **Projekt EPICSAVE – Medientechnisches Konzept.** Interdisziplinäres Symposium zur Simulation in der Medizin InSiM 2016.
- Lerner, D., Luiz, T., Franke, A., Pranghofer, J., Blum, E., Gorodilova, L., Cemp, K., Neuberger, M., Schild, J., Seele, S., Herkersdorf, M. **Projekt EPICSAVE – Didaktisches Konzept.** Interdisziplinäres Symposium zur Simulation in der Medizin InSiM 2016.
- Luiz, T., Schild, J. **Das Projekt EPICSAVE – Vorstellung des aktuellen Entwicklungsstands des Projektes EPICSAVE zur Entwicklung, Implementierung und Erprobung digitaler Medien in der Ausbildung von Notfallsanitätern.** Interdisziplinäres Symposium zur Simulation in der Medizin InSiM 2016.
- Buhler, H., Schild, J., Seele, S., Herpers, R. **Integration von Panoramabildern in eine Echtzeit-Game Engine für Virtual Reality Szenen.** Workshop Virtuelle Realität und Augmented Reality der GI-Fachgruppe VR/AR 2016.
- Schild, J., Luiz, T., Runggaldier, K., Cemp, K., Herkersdorf, M. **Project EPICSAVE – Enhanced Paramedic vocational training with Serious games And Virtual Environments.** NextMed / MMVR 2016.
- Schild, J., Seele, S., Luiz, T., Lerner, D., Neuberger, M., Cemp, K., Herkersdorf, M. **Enhanced Paramedic vocational training with Serious games And Virtual Environments.** eQualification 2016.