

What's Up MÄK

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Take Initiative and Save Lives. That's What We Train Our Commanders.

MÄK provides the simulation technology and software architecture to build modern command staff training systems to teach decision-making and communication skills



MÄK has the systems and technology you need to train your commanders and staff, to stimulate your command staff trainers, or to develop the simulation environment to stimulate a C2 system.

Whether you're wargaming or managing a local crisis, simulation plays an important role in command staff training. Its job is to model the situation to provide learning opportunities for the trainees and to stimulate the command and control (C2), or Mission Command systems, they use. Simulation helps trainees and instructors plan the battle, fight the battle, and review the battle.

How the Command Staff Sees the World

The way the command staff interacts with the world is based on the information sources they have available and the systems they use to organize and distribute that information. This includes intelligence reports from a C2 system, surveillance video feeds, command interfaces, and personnel giving status and logistics reports, as well as the non-military side of intelligence, like news reports from TV or radio broadcasts. Commanders and their staff are constantly flooded with stimuli — it is a complicated world to train in. Using simulation in command staff training requires simulation technology powerful enough to stimulate all those systems.

Simulation scenarios are built using a Computer Generated Forces (CGF) platform, which simulates the mobility and status of individual entities, like vehicles and people, or abstract groups, like companies or battalions, in a virtual world. With MÄK's VR-Forces CGF, you can model your force structure to match the scope of your training mission; for example, model combat at the brigade versus brigade level or match a single warfighter against another. The units in your CST training simulation come complete with mobility, electronic warfare, sensor, and logistic models, weapon interactions, and health and status displays; you can also model the activity happening "outside" of the simulation to feed news reports and other non-military operations to the C2 system. Use artificial intelligence (AI) to help automate the behavior of units, allowing the command staff and/or role players to dynamically control the scenario. With VR-Vantage IG, generate simulated video to show surveillance and reconnaissance feeds as though it were live.

Achieve Your Command Staff Training Goals with MÄK

MÄK's wargaming technology models the situations that stimulate your training — regardless of echelon — to help you communicate better and make stronger battlefield decisions. (continued on [page 3...](#))

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Customer Success!

Cincinnati Children's Hospital Medical Center - Division of Sports Medicine Uses DI-Guy to Create Sport-Specific Scenarios for Training & Evaluation

It can take an athlete up to 18 months to return to sport after a torn ACL; even after surgical reconstruction and physical therapy, the athlete has up to a 30% chance of sustaining a second injury. Additionally, athletes have between a 50-100% chance of developing osteoarthritis within 20 years of their initial injury. Prevention of these types of injuries is key and it is especially important to know when it is safe for athletes to return to sport after such an injury.

The TEAM VR (Training Enhancement and Analysis of Movement Virtual Reality) Laboratory in the Division of Sports Medicine at Cincinnati Children's Hospital Medical Center is leading the development of virtual environments to objectively quantify the progress of injury prevention training and physical therapy so that adolescent athletes can perform at a high level. TEAM VR has chosen VT MÄK's DI-Guy human simulation software to help create sport-specific scenarios for training and evaluation.

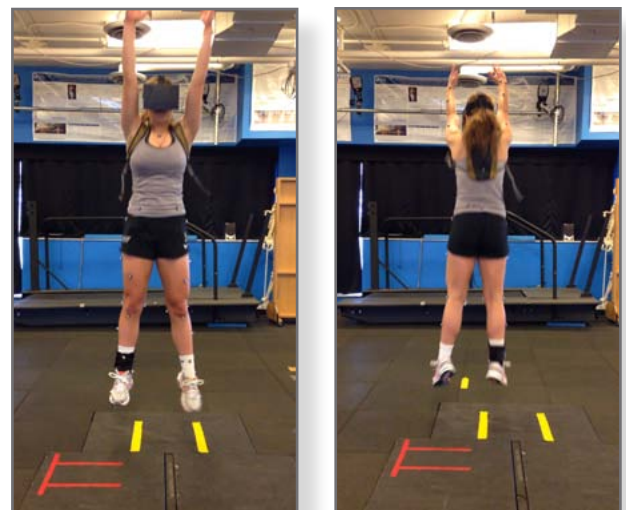
TEAM VR's virtual environments aim to give physicians, physical therapists, athletic trainers, practitioners, and strength and conditioning specialists the tools to accurately measure the biomechanics of a child athlete (joint movements, strength, or flexibility for example) by actively engaging him/her in realistic, immersive sport scenarios; these scenarios are performed in a virtual environment that mimics competition on the field/court of play. The TEAM VR laboratory is equipped to utilize virtual environments for knee injuries, as well as concussion prevention. It can also be used as an education simulation center to help sideline first responders like athletic trainers and team physicians gain experience with sideline injury scenarios.

The TEAM VR environment is different than computer-assisted virtual environments (CAVE) in that the participants are not tethered to the equipment and are able to move naturally over ground without the use of a treadmill. It is fully integrated into the world-renowned Human Performance Laboratory and utilizes 35 motion capture cameras to detect the location of the athletes. Athletes wear a head-mounted display to transmit the virtual environment via a customized wireless video system that updates the display in close to real time. The virtual environment will use DI-Guys to represent opponents, teammates, and coaches/instructors. The goal is to get the athletes actively playing the sport so that clinicians can measure modifiable injury-risk biomechanics to enhance movement adaptations and provide feedback in a safe, controlled space.

Of course, the athletes are not actually kicking, throwing, or catching balls: the time lag of present VR systems does not allow for such things. Rather, unique scenarios are created

to mimic portions of sport-specific maneuvers such as the approach, jump, and land during a basketball rebound. While the athlete does not actually experience the feedback of interacting with a physical ball, the athlete is immersed in such a way that he or she must respond and adapt to the movement patterns of teammates and opponents in the scenario, and even the flight of the ball. Thus the virtual environment provides a safe space for the athlete to push to a higher level, while simultaneously training him/her to better attend and react to the constant change of their surroundings.

MÄK's **DI-Guy software** provides the artificial intelligence (AI) engine to drive three key immersion components for athletes, patients and practitioners when inside the virtual environment: (1) strategic immersion, (2) social immersion, and (3) narrative immersion. Strategic immersion is utilized to mentally engage the user in the simulation and is made up of a combination of immediate, physical responses and more cerebral, cognitive decisions that underlie the overall strategies the user must adopt to complete sport-scenario tasks. Social immersion engages the user with other non-player characters that may be controlled by either AI or by another human that is sharing the virtual environment with the user. If it is difficult for the user to tell the difference between a human-driven or a computer-driven character, the social immersion is high. Finally, the narrative immersion is used to build story that the user can become invested in and dictates how much he or she cares about the additional non-player characters and overall task goals. Together, these three components encourage real-world like performance that is transferable to the real world. 🌸



An athlete going up for a basketball rebound while using the TEAM VR system

Want to see your success story published? Get in touch with us at marketing@mak.com!

Achieve Your Command Staff Training Goals

Our simulation software is designed to work in live, constructive, or virtual simulation environments and they scale from a single computer to distributed networked simulation systems with sites across the world. Our software architecture allows you to deploy your training scenarios in a lightweight, low overhead way, taking advantage of the latest web technology and techniques; create tactical displays that provide situational awareness or build simple control interfaces to allow instructors to quickly and easily manipulate what's going on in the simulation. **Battle Command** and **ECOSim**, our application-level command staff trainers, come ready to configure for training. We offer software tools, like **VR-Forces**, **VR-Vantage**, and **VR-Exchange**, that help you build new training systems, integrate into your existing training systems, and stimulate Mission Command systems. We have application-level tools that are ready to configure for training and we offer software tools to build new training systems, to integrate into your training systems, or to stimulate Mission Command systems. ❀

Learn more about how MÄK can help achieve your Command Staff Training goals.
Get in touch with us at info@mak.com!



Be a Part of the Web & Mobile Movement in M&S

Web & Mobile Virtual Symposium 2014

Join us for our first ever **Virtual Symposium** on Wednesday, October 8! Let's discuss how the modeling & simulation community can take advantage of web & mobile technologies in the development of training and experimentation exercises.

What is a Virtual Symposium? Back in the day, the ancient Greeks hosted symposia to meet and discuss philosophy, politics, and matters of the heart. Back then, people had to physically attend the symposium to be face-to-face. On October 8th, we invite you to come virtually using Zoom, a web-based video conferencing app.

We really want to meet face-to-face, so for this meeting you'll have to have a video camera and access to the internet. We know that this is a challenge for many people in our industry, so we've scheduled the symposium for 12pm EDT; we hope that you can take a break for lunch if you are on the East coast, go to work late if on the West coast, or join us after work if in Europe. If joining on your work laptop isn't an option, consider downloading the Zoom App on your mobile phone and finding a quiet place outside your office to connect with us.

We hope you'll join our discussion and share your thoughts about web & mobile's place in the modeling and simulation community. *Learn more* about the topics we'll discuss and feel free to get in touch with us if you have questions. ❀

SILKAN Uses the MÄK WebLVC Server at Eurosatory 2014



We're not the only people using WebLVC. **SILKAN**, a French integrator of leading-edge, simulation-based solutions used worldwide for the design, optimization, testing, operation, and maintenance of complex systems, with assistance from Antycip Simulation, is reaping the benefits of web technology too. At **Eurosatory 2014**, an international land defense exhibition, SILKAN used the **MÄK WebLVC Server** to demonstrate the next-generation mobile instructor station for armored vehicle training systems. SILKAN's prototype offers instructors a user-friendly and flexible way to control and monitor simulation sessions, thus opening new ways to leverage training. ❀

The MÄK FOM Editor: At Home on the Web

A word from Jim Kogler about MÄK's latest online technology

MÄK has been a leader in interoperability for a long time. We have an industry-leading RTI, the MÄK RTI, and DIS/HLA interoperability library, VR-Link. MÄK is excited to add to our interoperability success with the new **MÄK FOM Editor**. The MÄK FOM Editor is a free, web-based application where customers can build and manage their own FOMs (Federate Object Model). Maybe you're surprised to learn that the Editor is available online as a web page — most modeling and simulation applications are heavyweight desktop applications. MÄK is leading the industry by bringing lightweight and powerful web applications to the modeling and simulation community.

We chose to develop the MÄK FOM Editor as a web-based application because we could do it quickly with less hassle than a standard desktop application. First, we could develop it once and deploy it on any platform for which our customers had a web browser. Second, since there is no heavyweight deployment process, it means we can release new versions of it – with bug fixes and new features – almost every day! If you follow it, you will see changes every single day.

Keep reading...

VT MÄK – Blue Ribbon Winners for Innovation

2014 has been full of innovation for VT MÄK. We have taken advantage of new technology by drafting a standard, **WebLVC**, with SISO to enable interoperability of web-based M&S applications. We have developed the **MÄK WebLVC Server** and a suite of apps that bring a modern twist to traditional training systems by making them light-weight, accessible, and mobile. It's running now: www.mak.com/tsd.

MÄK continues to release interoperability, simulation, and visualization products that make modeling & simulation easier and more cost effective. Hop on the innovation train! **Contact us** to learn how to get involved. 🌟



MÄKer Spotlight: Aaron Dubois

Principal Software Engineer



This month the spotlight shines on Aaron Dubois, one of MÄK's Principal Software Engineers. As a Principal Software Engineer, Aaron develops new features for VR-Forces and provides fantastic support to our customers. He is also involved in SISO Standards development and is currently the editor of the GRIM guidance document for our RPR FOM. (Check out his latest blog post about **RPR FOM 2.0**.)

Before joining the VR-Forces team here at MÄK, Aaron worked on our Link product suite. He started out as an engineer on the MÄK RTI and then became a lead engineer for the Link team. Prior to MÄK, Aaron worked on network encryptors at General Dynamics and was a radar systems software engineer at a company called Telephonics. Aaron holds a B.A. in Computer Science from Boston University.

A scuba diver for most of his life, Aaron started diving when he was 12 in the cold waters off New England shores; when he turned 18, he became a certified cave diver. Now that he's a seasoned diver, Aaron prefers the warmer waters of the Caribbean or the clear spring waters in the caves of Florida.

Aaron enjoys playing board games with family and friends and loves to take his dog, Ginger, to as many new parks and trails as he can find. Aaron is a huge Lord of the Rings fan — he's read the books (including The Hobbit and the Silmarillion) more times than he can count!

We hope this piques your interest in our community here at VT MÄK. Stay tuned to the **MÄK blog** and **Twitter** for more updates from us! 🌟