

## CASE STUDY: SUPPORTING RAPID TRAINING OF MILITARY SURGICAL NURSES

### BACKGROUND

"The key to successful peacetime and wartime nursing operations is a robust nursing force, a force with the right numbers, right experience and the right skills".

Major General Kimberly A. Siniscalchi \*

With one million new nurses required by 2016, and nurse shortfalls projected to reach as high as half a million by 2025, the United States is facing a critical shortage in qualified nurses. This nursing manpower crisis is reflected in the challenges facing the United States Air Force (USAF), which has a Total Nursing Force of 19,000 men and women in its Active Duty, Air National Guard, Air Force Reserve, civilian, and contract forces. Today over fifty percent of the USAF's new nurse recruits are novice nurses, having less than six months nursing experience, and requiring training.

Surgical nurses play a critical role in the USAF medical team. As part of their training, surgical nurses must be familiarized with surgical instruments, how to handle them, and how to correctly prepare a surgical tray. These instruments number over 80, with many closely resembling each other. During surgeries, it is essential that nurses are able to locate any instrument quickly and without error.

### CHALLENGE

Medical Training Teams are challenged to deliver effective, time efficient training to nurses on surgical instrumentation. Due to supply limitations, each nurse cannot be provided with a set of the surgical instruments for training, meaning hands-on training time is limited.

\* Assistant Air Force Surgeon General, Medical Force Development, and Assistant Air Force Surgeon General, Nursing Services, Office of the Surgeon General

### SOLUTION

NGRAIN® software—with its unique ability to allow real-time removal and replacement of 3D objects, and support of quick, cost effective development of 3D equipment simulations—was selected. With NGRAIN Producer, the training team is able to create 3D simulations, which include animations, movement constraints, and practice tasks, in less time than it would take to create a 2D animation.

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### RESULTS

With NGRAIN, nurse trainees each receive their own virtual set of surgical instruments, which they can use anywhere, anytime to familiarize and refresh themselves on the identity, location, and handling of the over 80 surgical instruments. The result is faster, better nurse training, supporting the objective of turning novices into fully qualified, mission ready nurses.



## CASE STUDY: TRANSFORMING MEDICAL TRAINING FOR NON-MEDICAL PERSONNEL

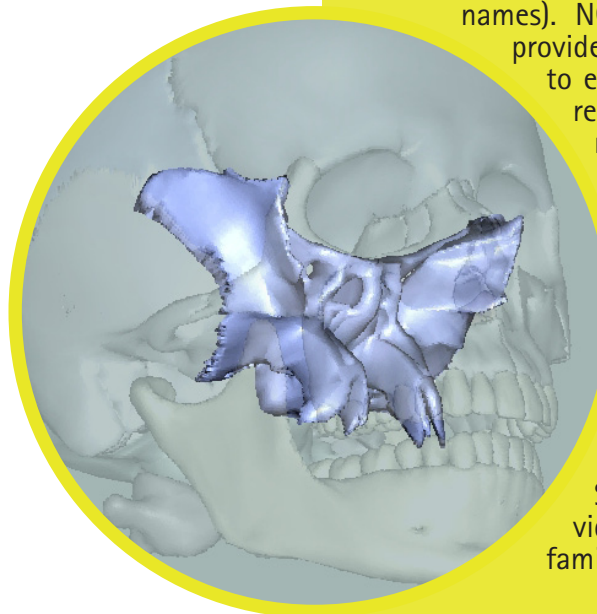
### BACKGROUND

The medical training of deployed airmen can mean the difference between life and death. That's why, with the average number of United States airmen overseas at 28,000 and more than 375,000 airmen deployed to war zones since 2001, it is increasingly critical to equip airmen with the medical knowledge and skills needed to help keep hurt personnel alive, until medical professionals are able to reach them.

“Time and time again, we heard plenty of stories... about Airmen performing more and more ground missions outside the wire. Gun truck stories, patrols, medical evacuations, you name it, it came up here ”

US Air Force Live

The Official Blog of the United States Air Force. May 13, 2009



### SOLUTION

Looking to interactive 3D visualization technologies, the Medical Training Team selected NGRAIN as the solution that provided both the interactivity and visualization features required, and allowed for quick, easy development and deployment, without any programming or scripting.

Using a 3D model of the skull from an online 3D model catalog, the Medical Training Team used NGRAIN Producer to add information (such as part colors and names). NGRAIN's free Viewer was then provided to students, enabling them to explore the 3D skull in real time, removing and replacing bones, reading callouts with textual information, and viewing interior bones, including the Sphenoid, within the context of a "ghosted" skull.

Subject Matter Experts also used Producer's easy "click and capture" animation tool to create overview animations that were exported as videos. Students were able to view these videos over the web as part of familiarization training.

### CHALLENGE

A key part of preparing non-medical airmen to provide emergency medical support is training in anatomy and physiology. Traditionally this training would be delivered using 2D animation videos, training manuals, and plastic models. However, a repeated problem where students were unable to understand the location of the Sphenoid bone inside the skull highlighted the need to innovate the delivery of this training.

### SOLUTION

NGRAIN's interactive in-context "ghosted" viewing capability has eliminated the confusion that once existed. Students are able to quickly see and understand where bones are located and how they interrelate. Due to the positive response from students, the 3D skull is being used in a number of medical training courses today.

Overall, NGRAIN is both a fast and cost effective solution to implement, enabling the advanced delivery of critical, potentially lifesaving training.