

# Wake Forest University Health Sciences

Office of Technology Asset Management  
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## Featured Technology

### System for Computer-Aided Three-Dimensional Bending of Spinal Rod Implants

Joint invention with researchers at Virginia Tech and WFUHS

#### Technology Description:

A computer-aided system for on-the-fly design and automated manufacture of corrective instrumentation for spinal surgery in scoliosis.

#### Overview:

Scoliosis is a medical condition wherein the patient spine is curved or rotated. Scoliosis affects 4.5% of the general population (approximately 7 million people in the US) and almost 500 new cases are identified every day, corresponding to approximately 173,000 new cases a year. The current clinical procedure for designing and shaping the surgical corrective instrumentation for scoliosis is poorly resolved. Corrective surgery typically involves the fixation of segments of the vertebral column through the attachment of curved titanium rods to the spine through arrangement of hooks. The shaping of the rods is done during surgery with the patient's spine exposed in a trial and error procedure using hand tools for bending and cutting the rods. As a result, the surgery is both very tedious and poses increased risk to the patient. **Significant treatment benefits and cost savings will be realized with a computer-aided system for the design of the curved rod for these patients.** This technology, developed at Wake Forest University and Virginia Tech, is a combination of manufacturing hardware and a computer-aided-design system to impose the desired curvature on an actual rod for immediate surgical use. The end result is a less tedious and time consuming procedure than existing alternatives. **The total market for these surgeries is a multi-million dollar market worldwide!**

#### Advantages:

1. Reduced surgery time results in reduced exposure of the patient to infection.
2. The increased accuracy of the produced output improves the likelihood of a desirable outcome of a spinal fixation surgery.
3. Reduced time and physical effort of the surgeon in designing and shaping the spinal implant results in higher efficiency and cost savings.

#### Additional information:

US20050262911A1: Computer-aided three-dimensional bending of spinal rod implants, other surgical implants and other articles, systems for three-dimensional shaping, and apparatuses therefore (Patent pending)

#### MISSION

To maximize the value of Wake Forest University's intellectual assets through the creation of novel and effective models for commercializing technology.

#### Licensing Contact:

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