AIM™

Simple and Precise 3D Needle Navigation

The Problem

Precise needle placement using ultrasound is extremely difficult, due to poor visibility and complex hand-eye coordination. Device misplacement results in multiple “stabs,” lengthy procedures, patient injury, and incomplete interventions. The resulting injuries cost $1B to repair annually, and these errors are the leading cause of malpractice claims against general surgeons.

Needle-based interventions have up to 20% injury rates.
(U.S. Agency on Healthcare Research & Quality)

Better visualization would enable more image-guided procedures to be performed with greater success.

InnerOptic’s Solution

InnerOptic’s patented AIM™ 3D guidance software is a “GPS for Needle Navigation,” enhancing the physician’s ability to easily, quickly and precisely place a needle (e.g., ablation antenna, biopsy needle, catheter introducer, etc.) using ultrasound imaging.

InnerOptic’s AIM 3D software improves the accuracy of needle-based interventions, reduces injuries, and shortens procedure times, resulting in better patient outcomes.

InnerOptic’s FDA-approved AIM reduces the spatial coordination problem inherent in ultrasound-guided interventions. AIM uses magnetic tracking to continually monitors the 3D positions of the needle tip and of the ultrasound transducer in real-time, without line-of-site or needle flex issues. InnerOptic licenses AIM to device and imaging companies for integration into their products.

AIM used for Laporoscopic Ablation

AIM provides the surgeon with real-time 3D guidance using electromagnetic tracking to quickly and accurately ablate liver tumors in a recent laparoscopic surgery.

Halt Licenses AIM for Fibroid Ablation

AIM displays the 3D virtual needle, virtual ablation “cage” and needle trajectory relative to the ultrasound image for fibroid ablation using Halt Medical’s radiofrequency ablation handpiece.

AIM is FDA cleared for sale in the United States (K121479). AIM and its use may be covered by U.S. Pat. Nos. 7,728,868, 8,350,902, 8,585,598, 8,690,776 and other patents pending.
**Supported Interventions**

FDA-approved AIM 3D guidance software addresses the over 27 million image-guided procedures performed annually in the US alone. AIM provides guidance for any single needle intervention using ultrasound imaging, including catheterizations, nerve blocks, *in vitro* fertilizations, tumor ablations, uterine ablations and biopsies. AIM supports open, percutaneous and laparoscopic interventions.

Aim’s Benefits:

- Easier, safer, faster, more precise interventions
- Supports laparoscopic, open and percutaneous interventions
- Lower error and injury rates
- High reimbursements with an existing CPT code
- Easy to use, intuitive 3D user interface
- Intuitive “freehand” device placement
- 3D interface restores hand-eye coordination
- Easy customization & integration into existing devices
- Covered by multiple patents
- Electromagnetic tracking with no line-of-site issue

**Specification:**

**Indications for Use:** Single needle interventions using ultrasound imaging.

**Display:** Stereoscopic 3D monitor or standard monitor

**Position Tracking:** NDI Electromagnetic tracking system

**Guidance:**
- Ultrasound image and needle in 3D
- Needle trajectory and intersection
- Ablation volume guide

**Supported Ultrasound Systems (To Date):**
- BK Medical: Pro Focus 2202, UltraView, FlexFocus
- Aloka: SSD-4000, Alpha 6, Alpha 7
- SonoSite: S-Series, MicroMaxx

**Supported Needles (To Date):**
- Halt Medical Acessa™ uterine fibroid ablation probe
- Covidien Emprint™ & Evident™ microwave antenna
- Covidien CoolTip™ RFA electrode
- AngioDynamics Accu2i™ MTA applicator
- Boston Scientific RFA electrode
- RITA/AngioDynamics StarBurst XL
- Any other 18-22 gauge needle upon request

**About InnerOptic**

InnerOptic Technology develops 3D navigation and guidance technology, making image-guided procedures simpler and safer to perform. InnerOptic was launched to commercialize breakthrough 3D navigation technology developed at the University of North Carolina at Chapel Hill. InnerOptic has an exclusive license to UNC’s patents in medical visualization and image-guided surgery. With grants from the NSF and the NIH, InnerOptic has extended this technology with over 12 patented innovations. Located in Hillsborough, NC, InnerOptic has close relationships with industry pioneers at UNC and Carolinas Medical Centers. InnerOptic licenses its IP and software to device and imaging companies for customization and integration and into their products.

**For More Information**

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