

GRAPHIC DESIGN

# Portfolio

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CAITLIN WIERSMA • 2018 - 2026

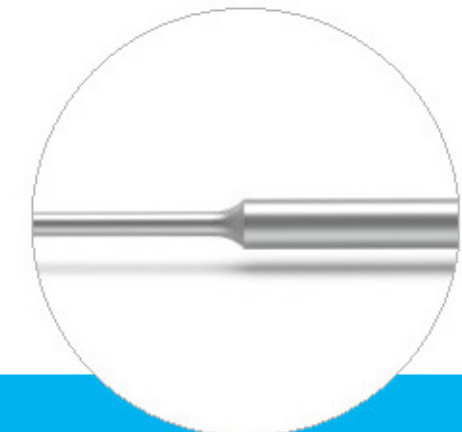
# + acumed® NanoPhix™ Cannulated Lag Screw

Cannulated, 1.5 mm diameter design  
**allows simple and precise fixation  
of small fracture** fragments such as  
avulsion and condylar fractures



Specifically sized for small fracture  
fragments to facilitate early, active  
**mobilization for accelerated  
healing and faster return to  
daily activities**

**Innovative dual-diameter guide wire**  
eliminates the need for drilling, simplifying a  
more precise implant placement



## A New Standard for Fracture Fragment Fixation



View More X-rays  
[go.acumed.net/NanoPhix-Xrays](https://go.acumed.net/NanoPhix-Xrays)

### System Features

Depth gauge features a  
countersink tip to minimize  
screw head prominence.



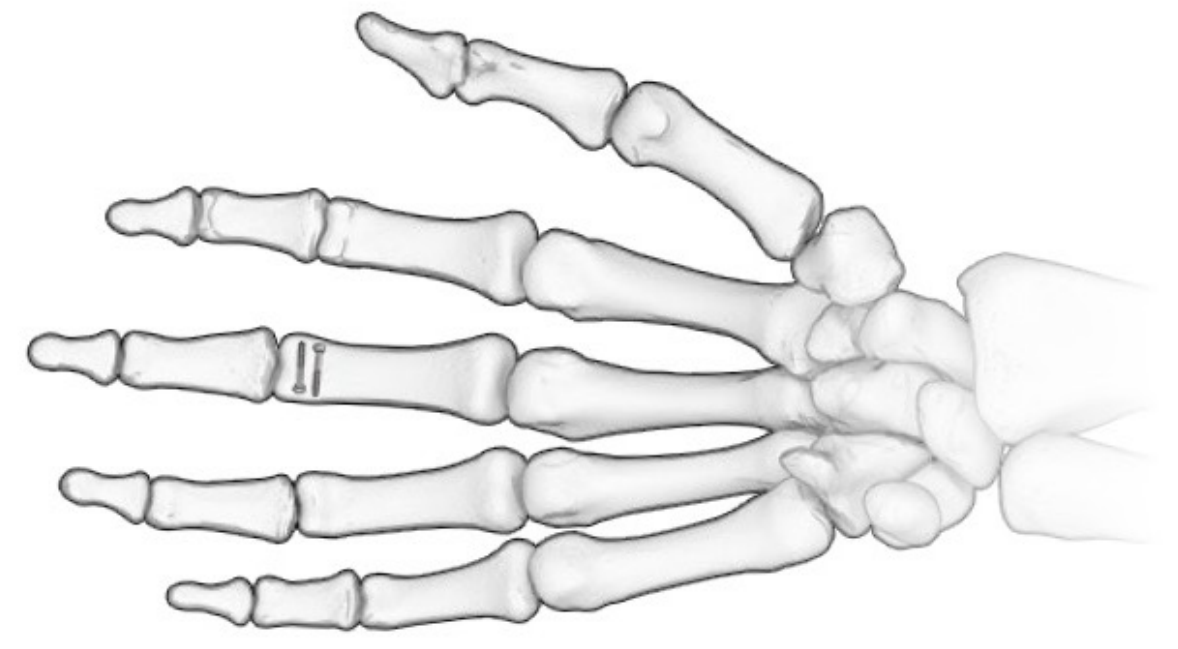
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Innovative dual-diameter guide  
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drilling, simplifying a more precise  
implant placement



Visit: [go.acumed.net/NanoPhix](https://go.acumed.net/NanoPhix)  
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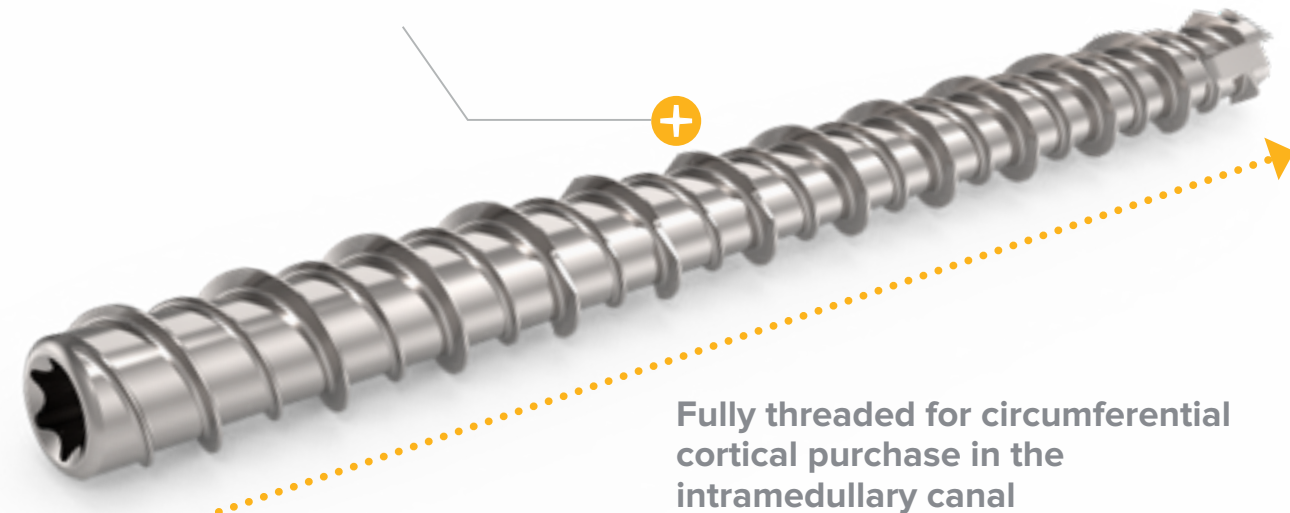
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**acumed**<sup>®</sup>  
**INnate**<sup>™</sup>  
 Intramedullary Threaded Nail System

Dual diameter design facilitates passage through metacarpal isthmus, **providing optimal canal fill for stable fixation**



Fully threaded for circumferential cortical purchase in the intramedullary canal

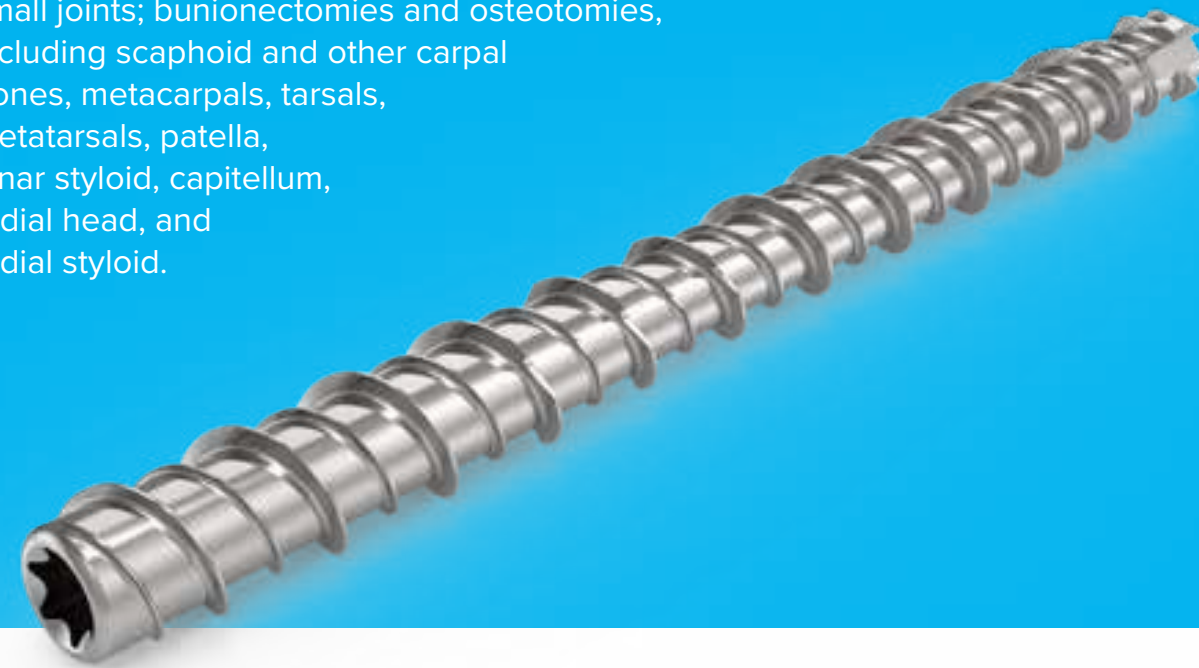
Non-compressive design **avoids shortening in oblique or comminuted fractures**

## A New Standard For Metacarpal Fracture Fixation

## INnate<sup>™</sup> Intramedullary Threaded Nail

INnate is an intramedullary threaded nail designed specifically for metacarpal fractures to provide surgeons with a reliable solution through a simple, minimally invasive approach. The robust length offering with a differential diameter design is intended to accurately fit the intramedullary canal and to create stable fixation and precise reduction for all types of metacarpal fractures.

The INnate Intramedullary Threaded Nail System is intended for fixation of intra-articular and extra-articular fractures and nonunions of small bones and small bone fragments; arthrodesis of small joints; bunionectomies and osteotomies, including scaphoid and other carpal bones, metacarpals, tarsals, metatarsals, patella, ulnar styloid, capitellum, radial head, and radial styloid.

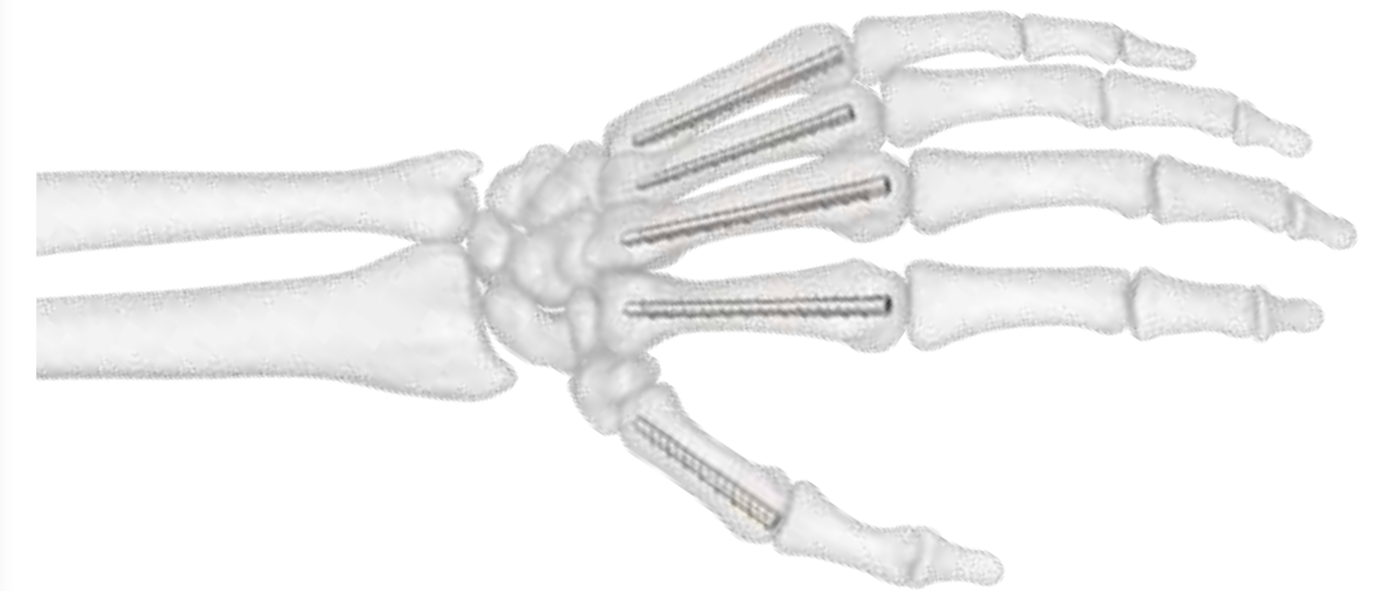


### INnate Sizes

25 mm*		<b>3.6 mm Diameter</b>
30 mm*		
35 mm		<b>4.5 mm Diameter</b>
40 mm		
45 mm		
50 mm		
55 mm		
65 mm ◊		<b>4.5 mm Diameter</b>
75 mm ◊		

\* 25 mm and 30 mm lengths only available in 3.6 mm diameter  
 ◊ 65 mm and 75 mm lengths only available in 4.5 mm diameter  
 Both Implant and instrument kits are sterile

Contact Your Local Sales Rep for More Information



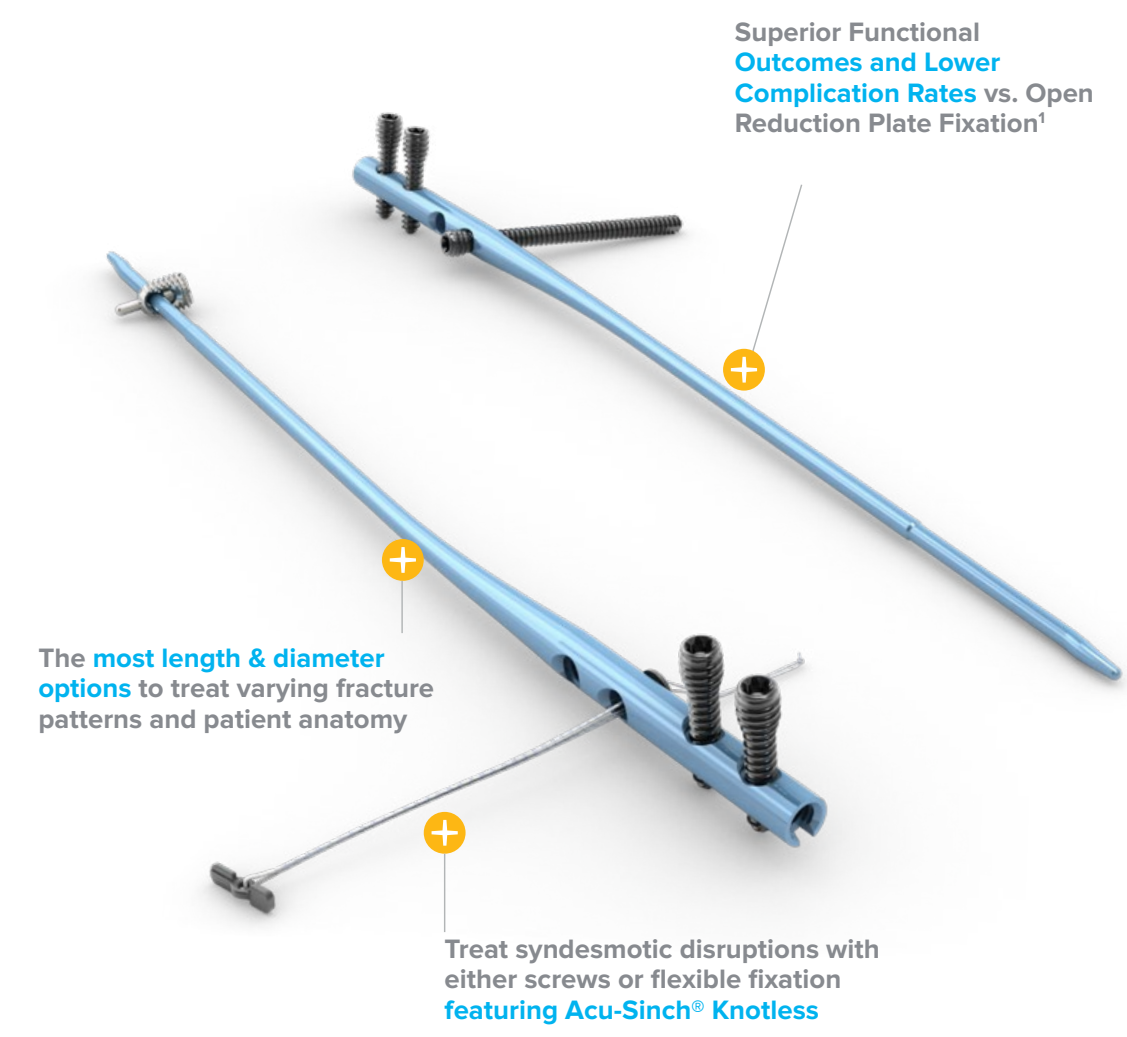
Designed to revolutionize hand surgery  
 Learn More About INnate  
[go.acumed.net/INnate](https://www.acumed.net/INnate)



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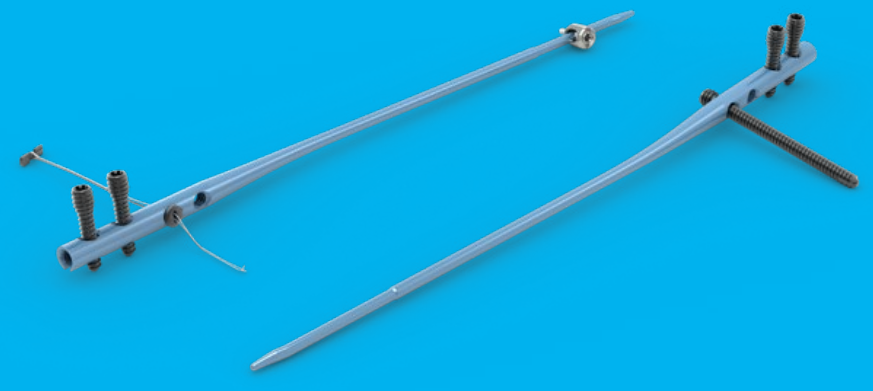
**+ acumed®**  
**Fibula Nail 2 System**  
 With Optional Tip-Loc™ Technology



Minimally Invasive,  
 Maximum Stability

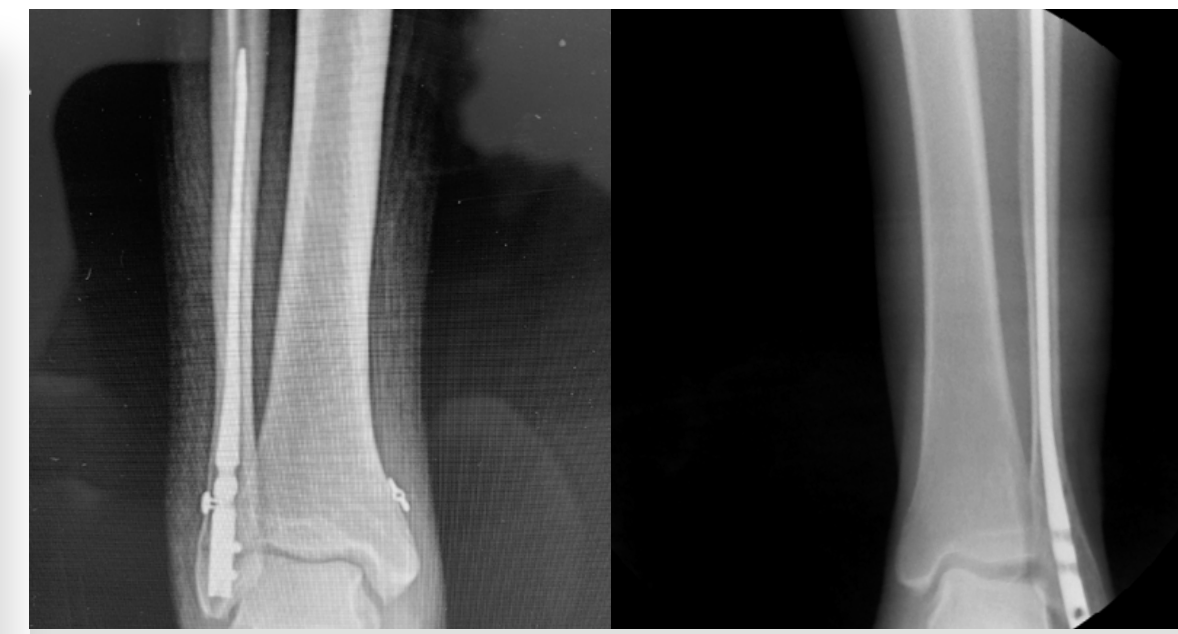
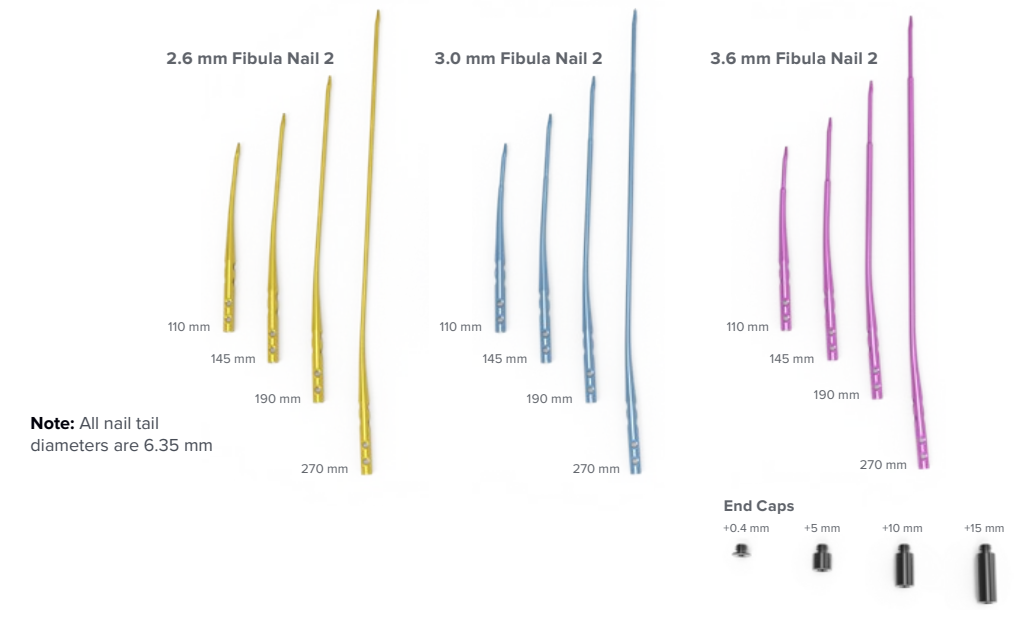
**Fibula Nail 2 System**

Designed in conjunction with Roy Sanders, MD, the Acumed Fibula Nail 2 is designed to address simple, transverse, and short oblique fractures as well as osteotomies of the fibula. The system includes three nail diameters and four length options, power reamers and carbon fiber radiolucent targeting guides to streamline the procedure, threaded holes within the nail, headless hexalobe screws to help minimize soft-tissue irritation, and the option to lock the nail proximally, providing additional fixation within the canal.



**Smallest Diameter, Longest Lengths on the Market**

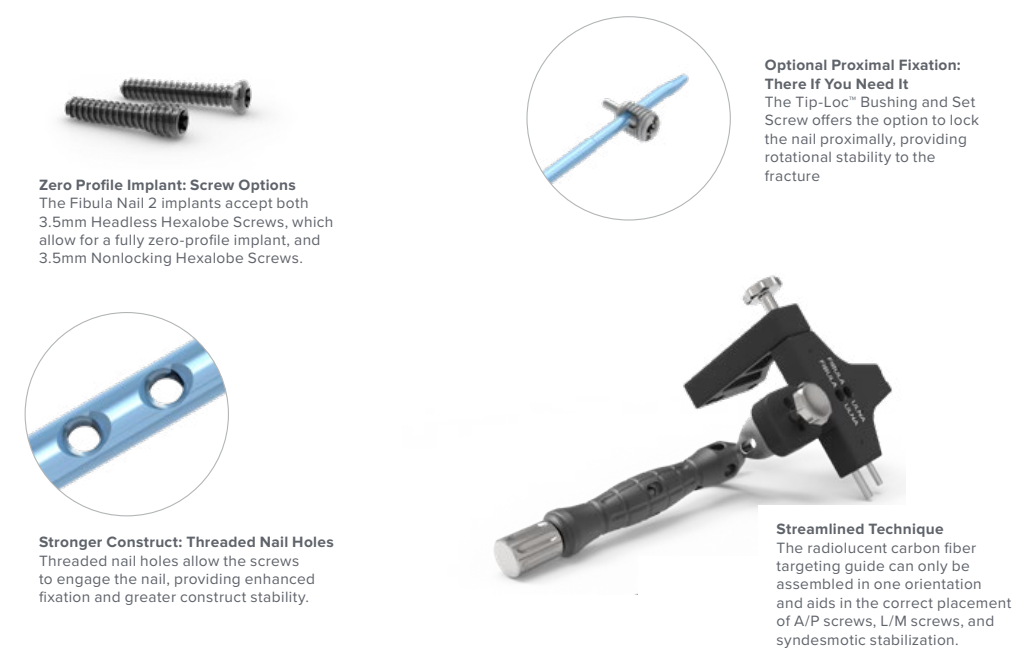
The Acumed Fibula Nail 2 includes 12 nails offered in 3 diameters and 4 lengths, 3.5 mm headless and nonlocking hexalobe screws, and the option to lock the nail proximally.



The Fibula Nail 2 featuring Acu-Sinch Knotless for syndesmotic fixation

5° bend in the nail accommodates the shape of the intramedullary canal

**System Features**



Contact Your Local Sales Rep for More Information

View the Fibula Nail 2 System  
 With More Sizes Than  
 Any Competitor  
[go.acumed.net/Fib2](https://www.acumed.net/Fib2)



<sup>1</sup> Samuel Z, Hong IS, Deliso M, et al. Intramedullary Fixation Versus Plate Fixation of Distal Fibular Fractures: A Systematic Review. *J Am Acad Orthop Surg Glob Res Rev.* 2024;8(7):e24.00119. Published 2024 Jul 10. doi:10.5435/JAAOSGlobal-D-24-00119

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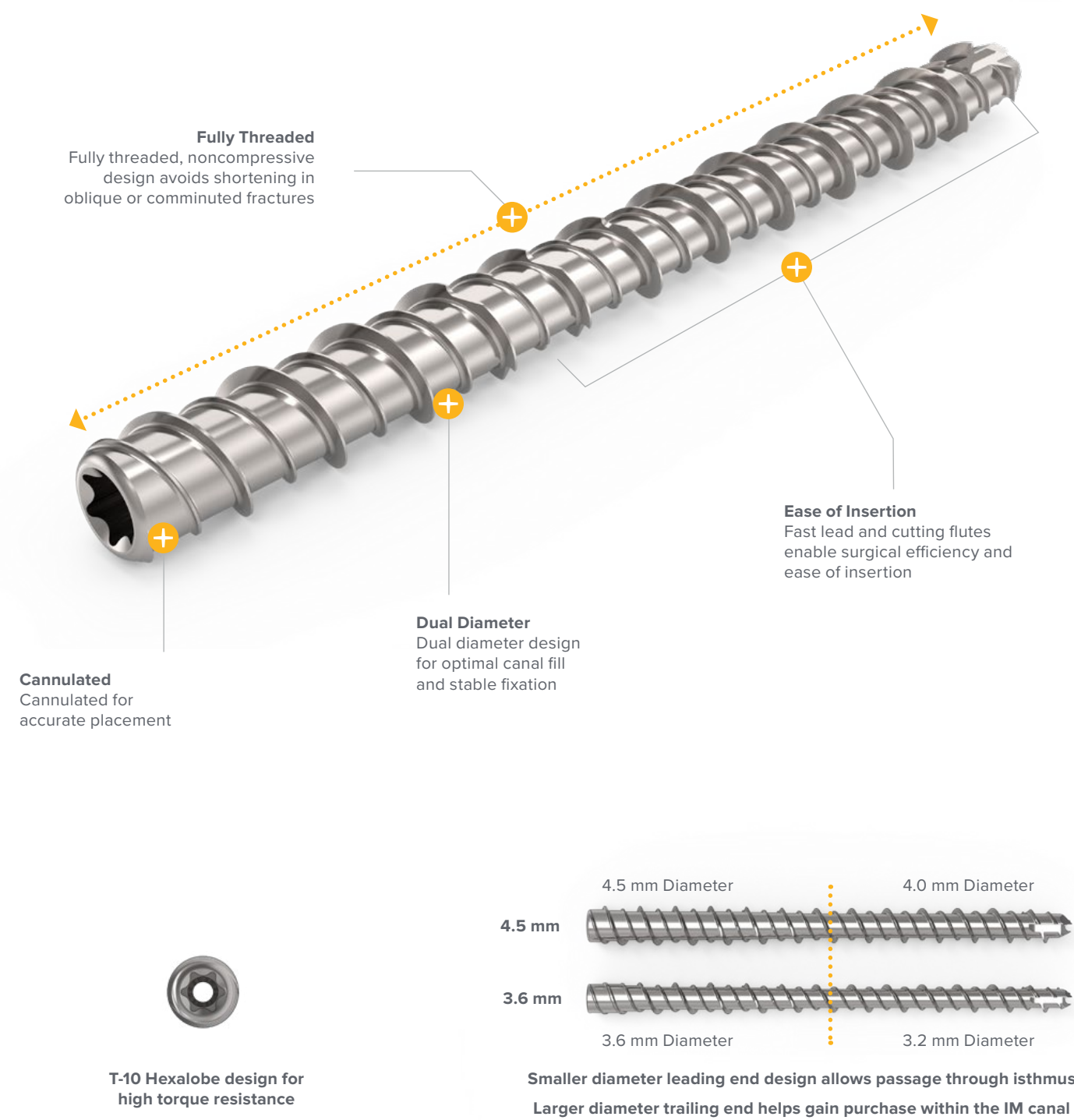
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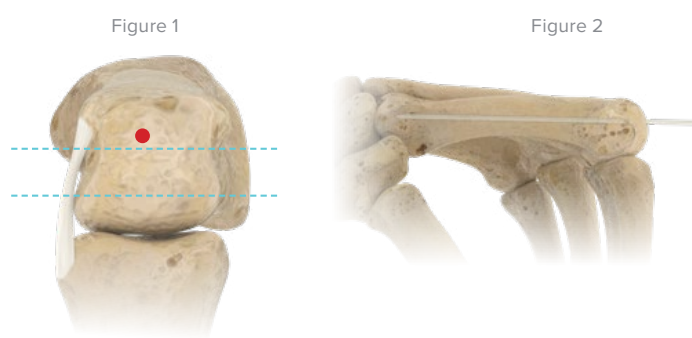


## System Features

- Multiple Lengths**  
For treatment of various shapes and sizes of small bones
- 3.6 mm Diameter: 25 mm, 30 mm, 35 mm, 40 mm, 45 mm, 50 mm, 55 mm Lengths
  - 4.5 mm Diameter: 35 mm, 40 mm, 45 mm, 50 mm, 55 mm, 65 mm, 75 mm Lengths



## INnate Intramedullary Threaded Nail Surgical Technique



### 1 Insert Guide Wire

Anatomically reduce the fracture fragments.

Insert guide wire percutaneously in a retrograde fashion until the tip of the guide wire is at the proximal cortex.

**Note:** The guide wire entry point should be in the dorsal third of the metacarpal head.

**Tip:** Once the guide wire is in place, make a stab incision at the point of guide wire insertion.

This will facilitate the free movement of the drill.

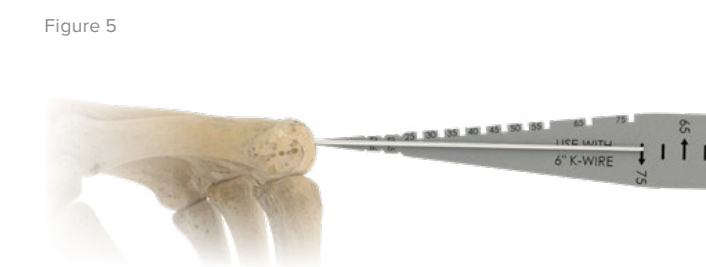
### 2 Measure and Select Implant Length & Diameter

- To determine the length of the implant, hold the depth gauge against the dorsum of the hand with the measurement edge aligned with the guide wire.
- Under fluoroscopy use the marked square notches (e.g. the 9th [last] square notch will be for a length of 75 mm) along the edge of the depth gauge to select the desired implant length (it may be appropriate to subtract up to 5 mm from the depth gauge reading to ensure subflush placement of the implant head).
- The 4.5 mm diameter INnate nail is commonly used for most metacarpal fractures, while the 3.6 mm diameter INnate implant was purpose built and specifically designed for the narrower isthmus most commonly encountered in the 4th metacarpal. To ensure proper size selection, we recommend measurement with the INnate measurement device enclosed in all instrument kits. To measure, hold the depth gauge against the dorsum of the hand with the edges of the annotated measurement markings aligned with the narrowest part of the intramedullary canal. See example below in Figure 4, where a 3.6 mm diameter implant (highlighted in blue) should be selected over a 4.5 mm diameter implant.

**Note:** The edge of the INnate depth gauge may be used to measure the length of metacarpal directly for determining implant length.

- Insert the depth gauge via the stab incision and, under fluoroscopy, confirm the tip of the depth gauge is against the metacarpal head.
- Measure the exposed length of the guide wire against the markings to select the appropriate implant length, ensuring that the selected length extends well past the fracture site (e.g. the image to the left will be for a length of 75 mm).
- Since the guide wire has been driven to the proximal cortex of the metacarpal, this measurement indicates the length of the metacarpal and not necessarily the desired length of implant. (Please select implant based on fracture location and note that it may be appropriate to subtract up to 5 mm from the depth gauge reading to account for any tissue between the depth gauge and bone, ensuring subflush placement of the implant head).

## Surgical Technique [continued]



### 3 Drill

Drill by passing the cannulated drill over the guide wire to the desired depth. Depth markings on the drill can be used to monitor drill depth.

**Tip:** Pre-drill the entire length of intended implantation.

Remove the drill carefully while maintaining the guide wire position. Do not remove the guide wire.

**Tip:** Prior to drilling, advance the guide wire into the base of the metacarpal to reduce the chances of dislodging the guide wire when the drill is removed.

### 4 Insert Implant and Confirm Placement

Insert selected implant over the guide wire.

Advance the implant into the bone to the desired depth. Manually hold reduction as the implant traverses the fracture site and engages the far fragment to prevent gapping at the fracture site.

**Tip:** Should excessive resistance be encountered, utilize the self-tapping features of the implant by backing out 1/2 turn and advancing. Repeat as necessary to avoid excessive force upon the driver and implant.

Verify placement and proper reduction with radiographic imaging. The head of the implant should be buried below the articular surface.

Remove the driver and guide wire.

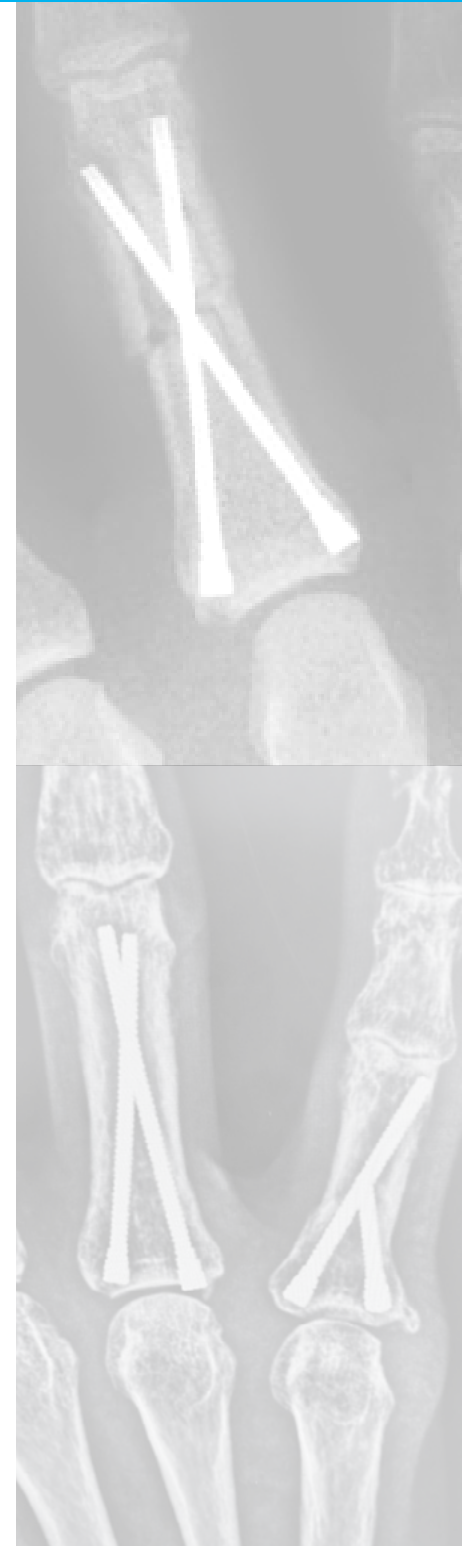
Surgical Technique



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Acumed<sup>®</sup> is a global leader of innovative orthopaedic and medical solutions.

We are dedicated to developing products, service methods, and approaches that improve patient care.



**InFrame™ Intramedullary Threaded Micro Nail System**

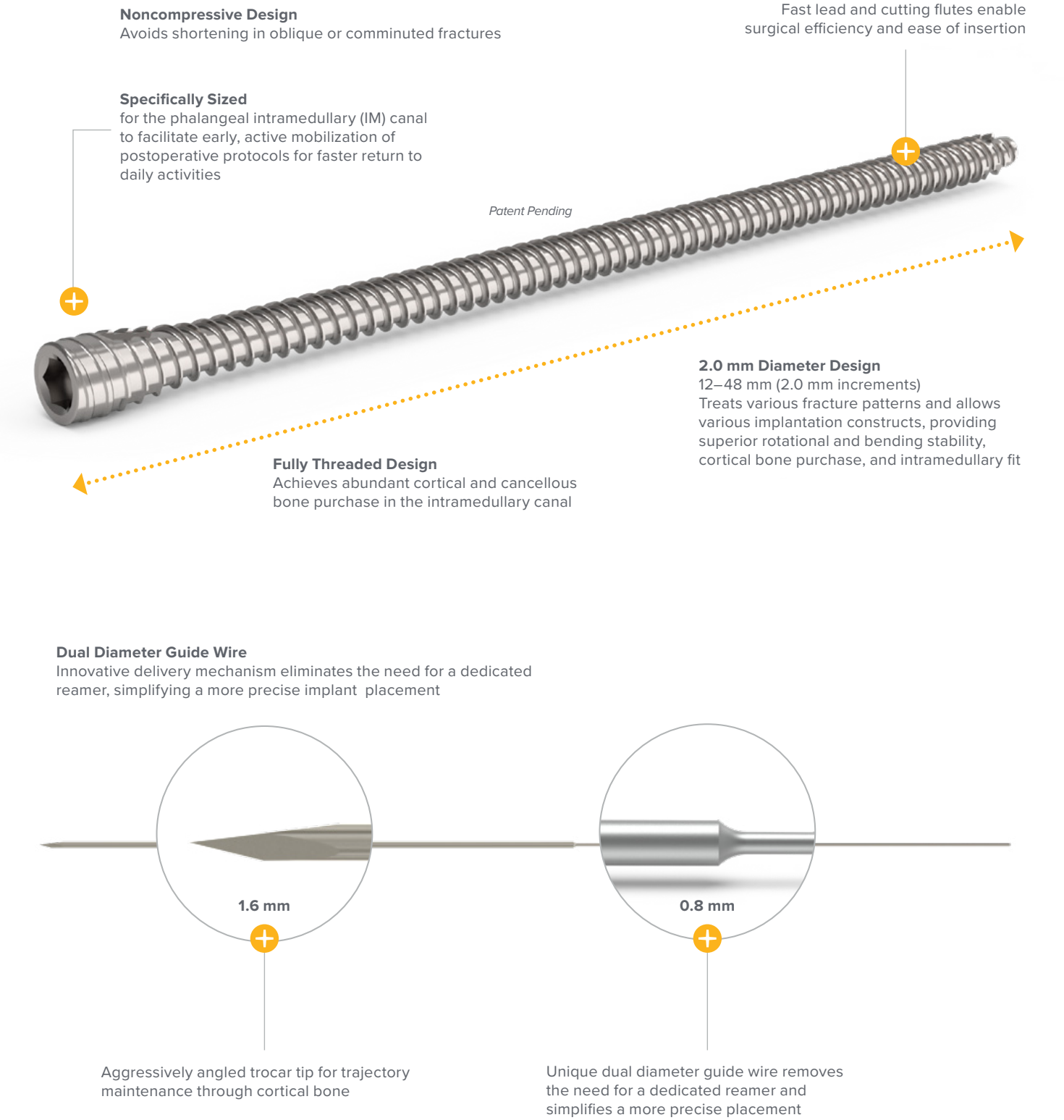
The InFrame Intramedullary Threaded Micro Nail System features a 2.0 mm diameter, stainless steel micro nail with a non-compressive design to achieve various implantation constructs for phalangeal fractures, providing superior rotational and bending stability and intramedullary fixation. The innovative delivery mechanism via the dual diameter guide wire eliminates the need for a dedicated reamer, simplifying a more precise implant placement.

**Indications for Use**

The ExsoMed InFrame cannulated micro nail is intended for fixation of intra-articular and extra-articular fractures and non-unions of small bones and small bone fragments; arthrodesis of small joints; bunionectomies and osteotomies, including scaphoid and other carpal bones, metacarpals, tarsals, metatarsals, patella, ulnar styloid, capitellum, radial head, and radial styloid.

The implant is manufactured from stainless steel and is offered in a 2.0 mm diameter. They are provided sterile packaged while a separate sterile packaged instrument kit provides the tools for implantation.

**System Features**



## Case Study

# Use of the INnate™ Intramedullary Threaded Nail for Displaced Fractures of the Third and Fourth Metacarpal Shafts



### Joseph Styron, MD, PhD

Cleveland Clinic  
Cleveland, OH

Dr. Styron completed his residency at the Cleveland Clinic and the pursued two fellowships to hone his subspecialty training in hand and upper extremity at the University of Pittsburgh Medical Center and at Shriners' Hospital in pediatric and congenital hand surgery. Dr Styron's specialty interests include surgery of the hand, wrist, elbow and shoulder. He has specialized training in nerve and tendon transfers in infants and children unable to move their hands.



Joseph Styron, MD, PhD  
Cleveland Clinic, Cleveland, OH

#### Case Presentation

Patient was a 24-year-old right-hand dominant male who presented to clinic six days after getting his dominant hand smashed in a car door, sustaining closed, displaced fractures of both his third and fourth metacarpal shafts. Patient is a carpenter and wanted to be able to return to work quickly. He needed stable fixation to restore the alignment and length of the metacarpals, allowing early range of motion (ROM).

#### Preop Plan

Dr. Styron discussed three approaches with the patient: 1) closed reduction with intramedullary nails, 2) open reduction with plates and screws, and 3) closed reduction with percutaneous pinning. As the patient wanted to minimize downtime and return to work quickly, Dr. Styron chose intramedullary fixation with INnate™. This approach would also decrease the necessary operative time.

#### Operative Findings and Approach

Dr. Styron made a small, curvilinear incision around the third metacarpal head. The extensor tendon was retracted and the joint capsule incised to expose the metacarpal head. The guide wire was placed in the dorsal one third of the metacarpal head. While performing a reduction maneuver on the metacarpal shaft, the guide wire was passed in a retrograde fashion across the fracture. The cannulated drill was used once proper pin placement was confirmed with the depth gauge under fluoroscopy. An INnate was then inserted, the wound copiously irrigated, and then closed in layers. This was then repeated for the fourth metacarpal through a separate small incision, in an identical fashion. The procedure used 4.5 mm diameter INnate with a length of 55 mm in both metacarpals. Total surgery time was 25 minutes.

#### Preoperative



Joseph Styron, MD, PhD  
Cleveland Clinic, Cleveland, OH

#### Post-op

At the patient's very first postop visit, 11 days after surgery, his stitches were removed. The patient already had full active digital ROM. Patient was also able to make a fist with minimal discomfort. The occupational therapist placed him in a removable brace, to be worn when doing any heavy activities; otherwise, he was instructed to stay out of his brace for active motion.

#### Outcome

INnate™ does an excellent job in providing stability to the fracture with minimal irritation of the soft tissues. This allows for early ROM, decreasing tendon irritation and stiffness, and accelerating the patient's return to function. The placement of INnate is simple and straightforward, thereby reducing operative time. Dr. Styron's professional opinion, the purpose-built design allows for early mobilization, minimizing patient downtime and accelerating return to work or daily activities when compared with other implants and approaches.

Use of the INnate™ Intramedullary Threaded Nail for Displaced Fractures of the Third and Fourth Metacarpal Shafts



Use of the INnate™ Intramedullary Threaded Nail for Displaced Fractures of the Third and Fourth Metacarpal Shafts

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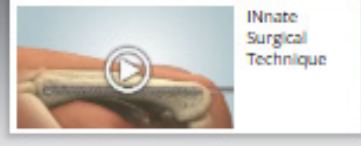
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A New Standard For Phalanx Fracture Fixation  
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Arc Wrist Tower

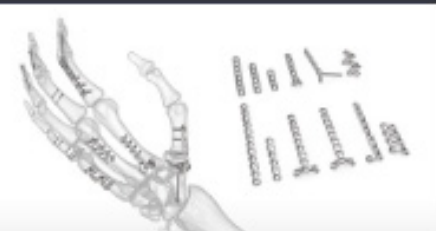
  
ArcPhix™ Functional Flexion Compression Screw System


  
OsteoMed ExtremiLock™ Wrist Plating System


  
External Fixation System

  
Forearm Fracture Solutions

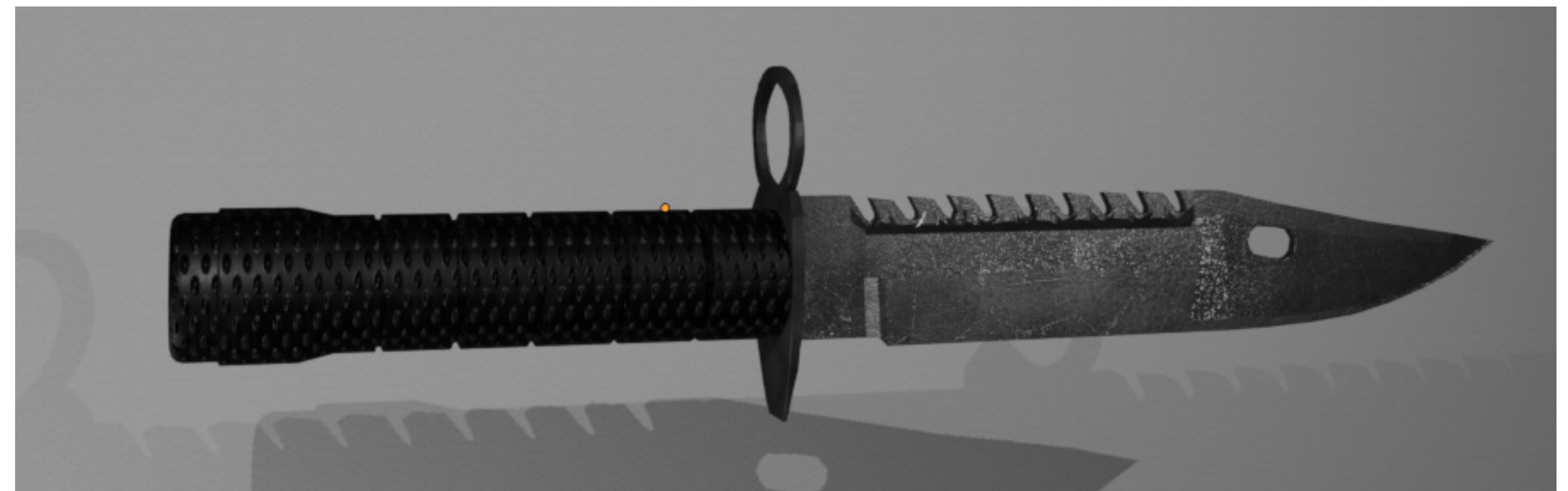
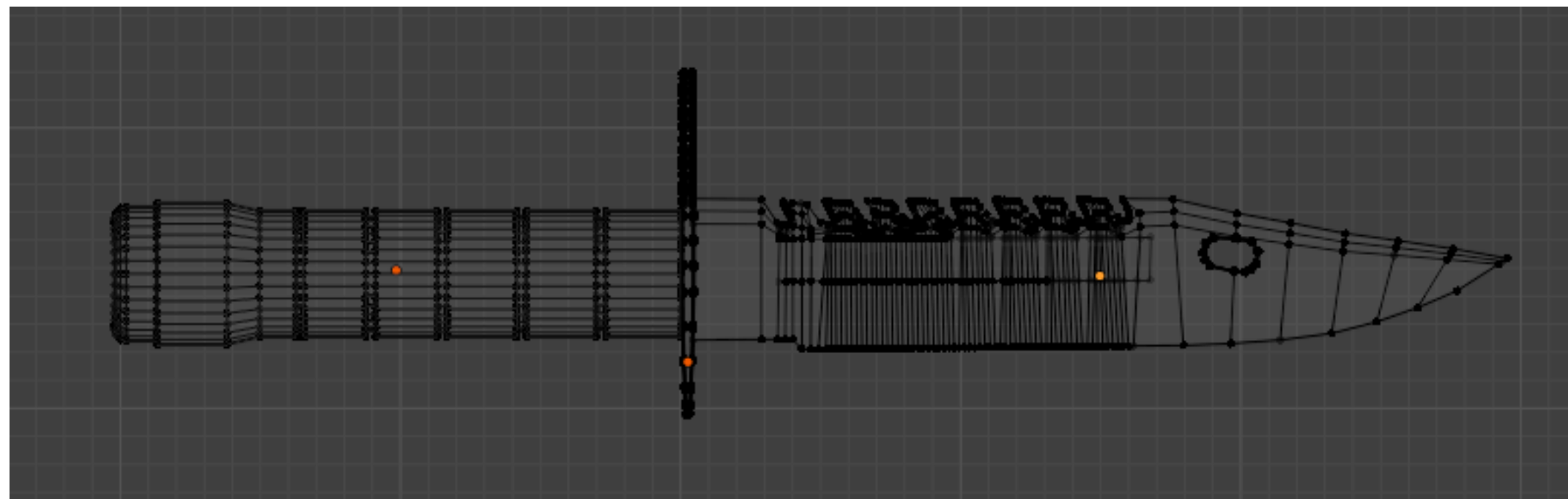
  
Hand Fracture System

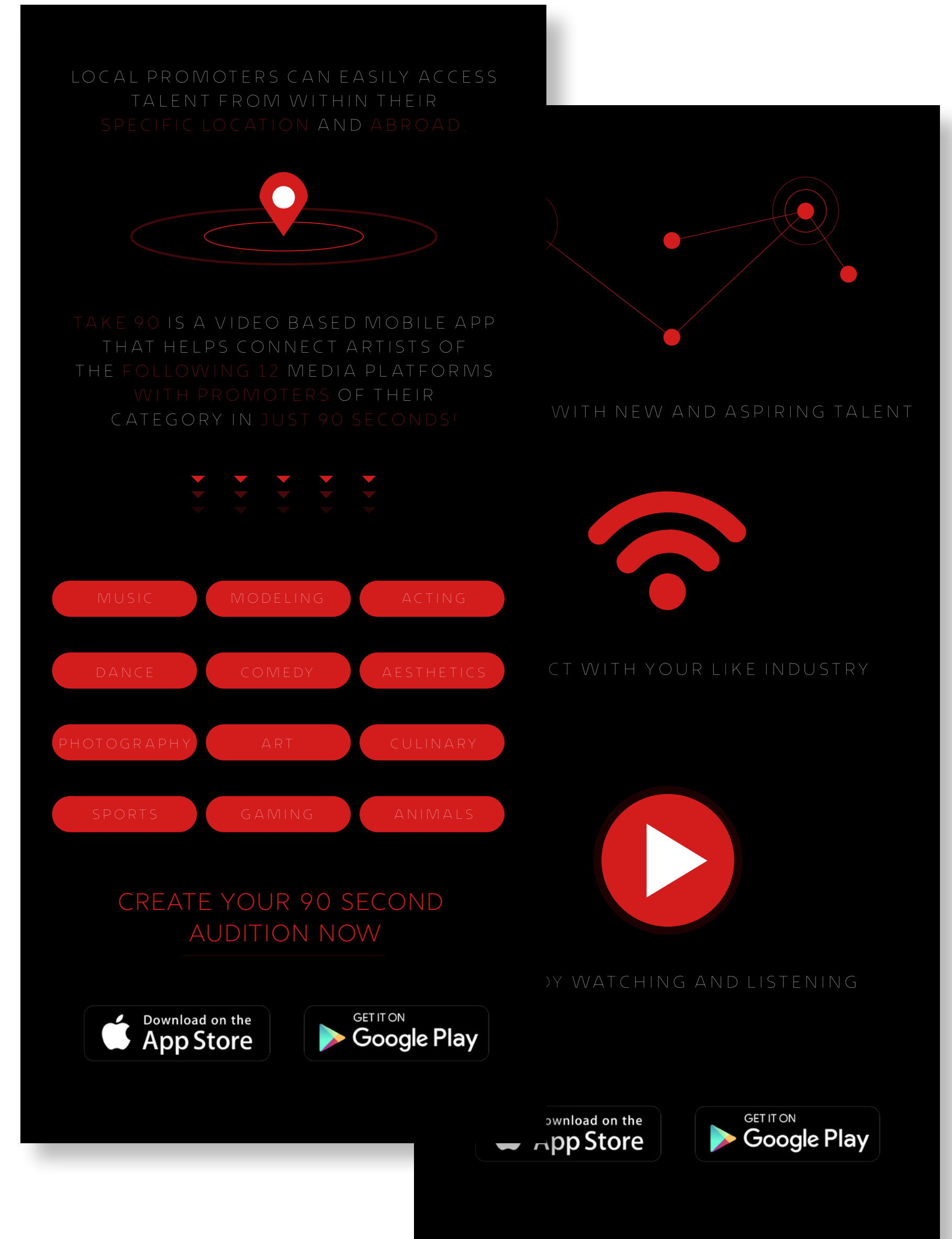
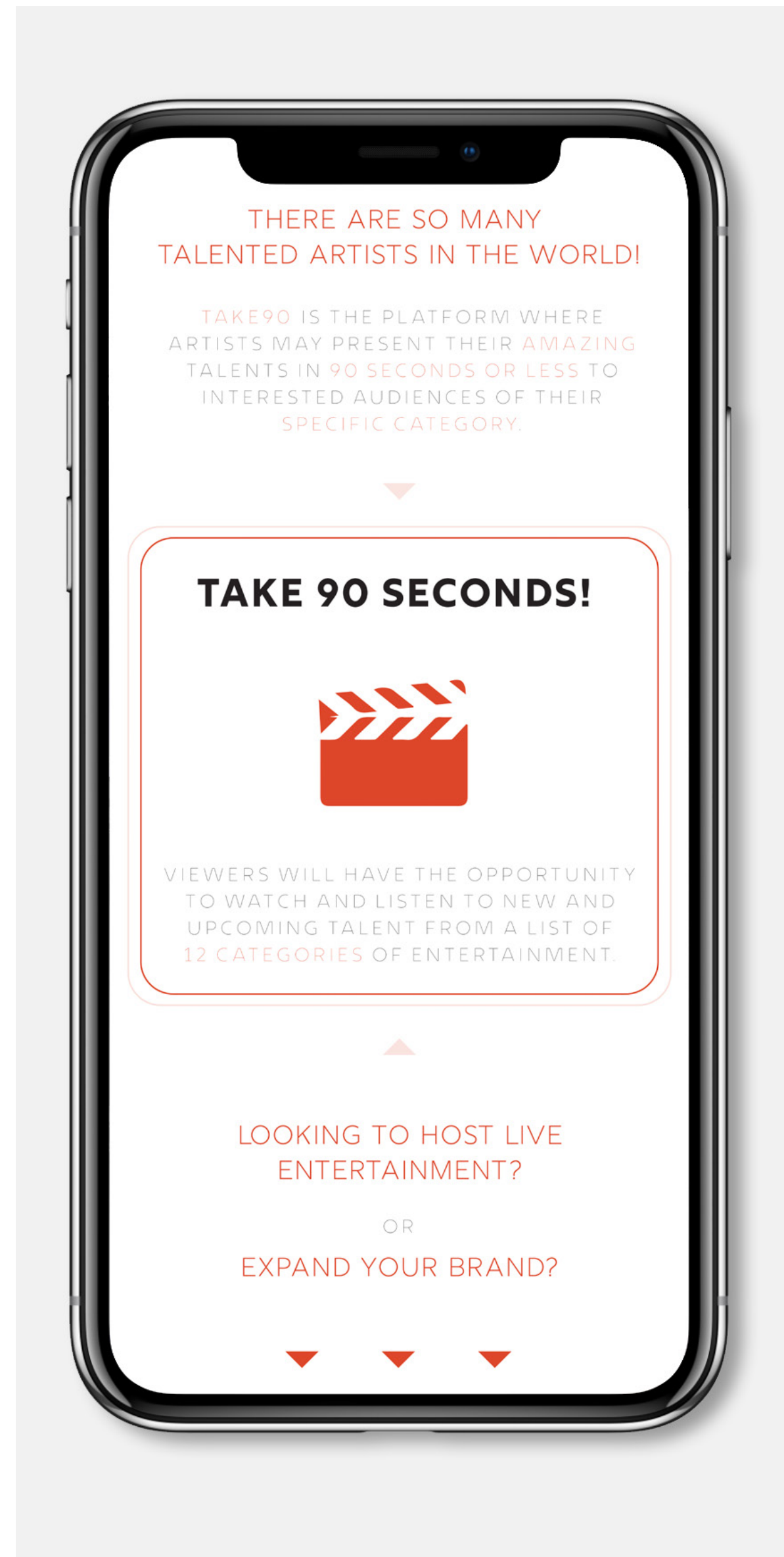
  
OsteoMed Hand Plating System (HPS)

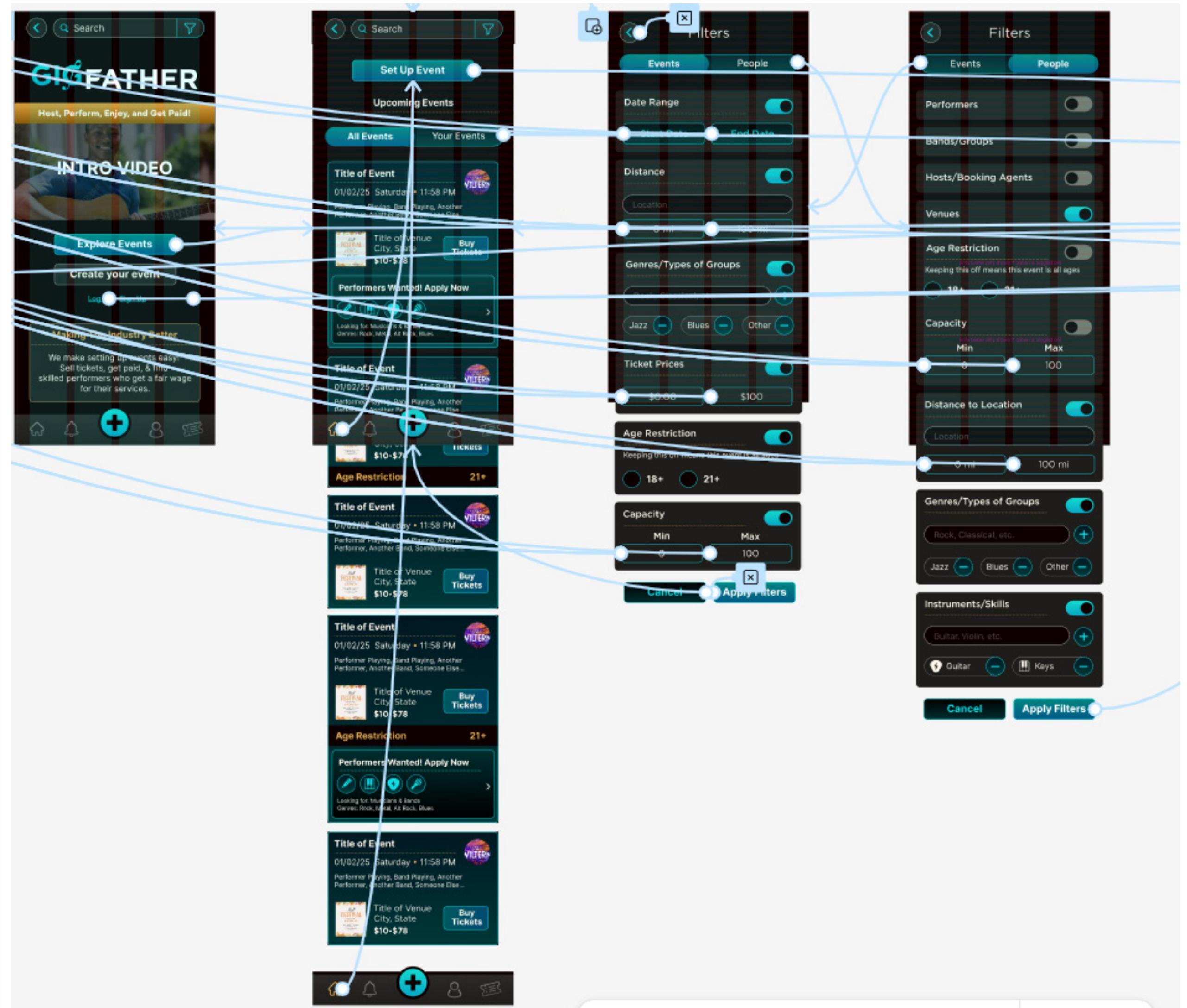
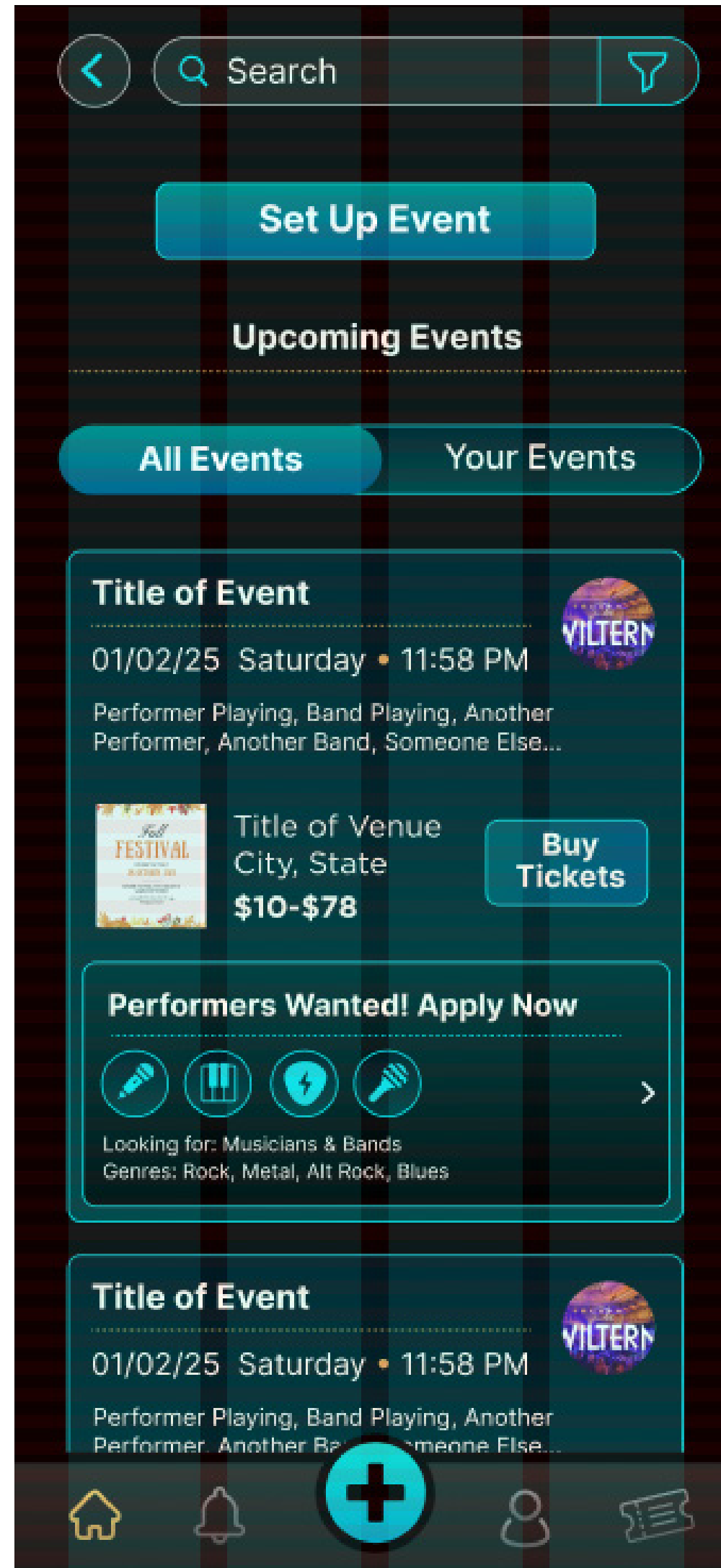
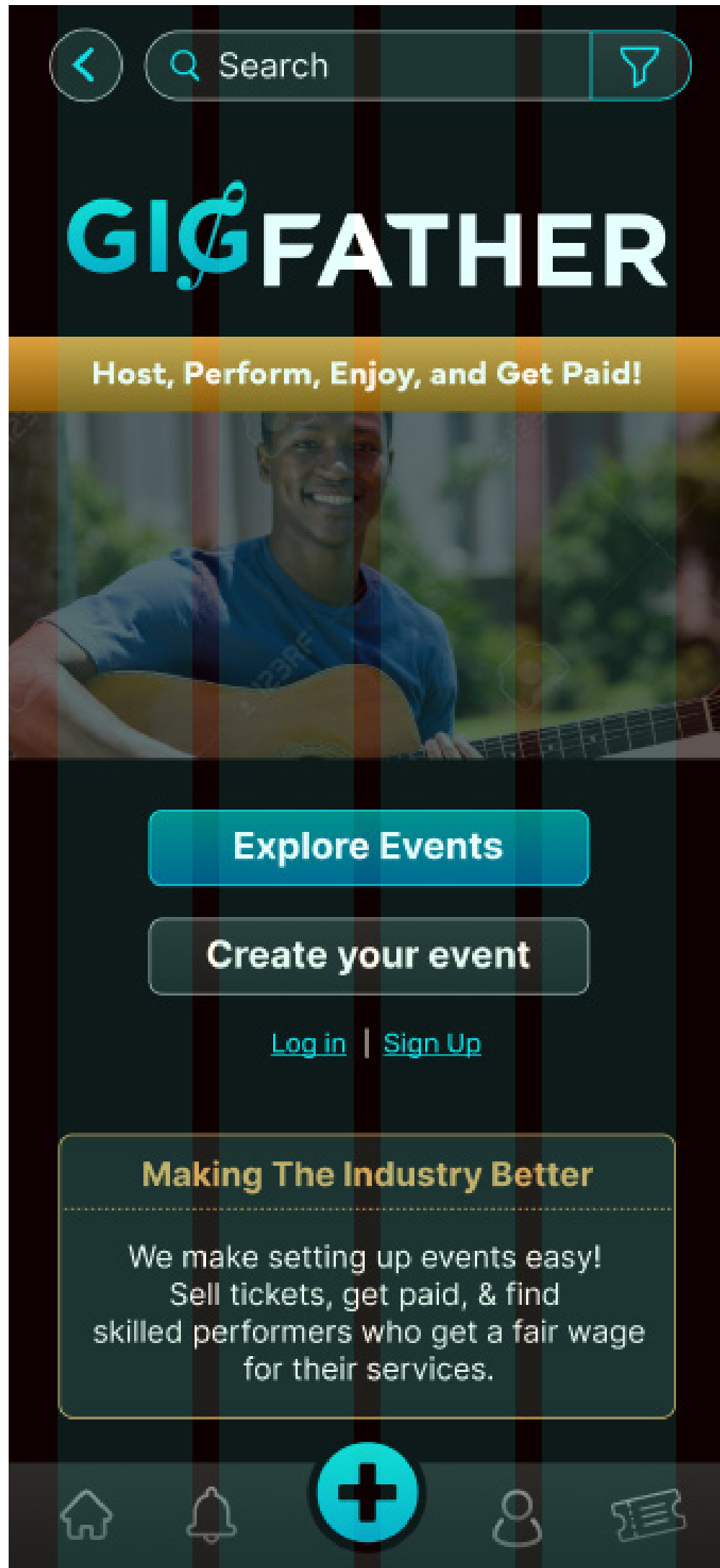
  
OsteoMed Hand Fusion System (HPS)

  
InFrame™ Intramedullary Micro Nail System









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2018 - 2026