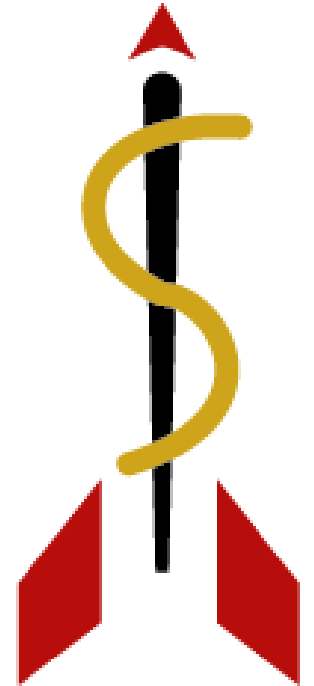


# cæléstis

A NOVEL APPROACH TO ASTROMED



**THERE AIN'T NO 911 ON MARS**

## CURRENT ASTROMED



66 x 35.6 x 20.3 cm  
(26.0" x 14.0" x 8.0")

16.34kg  
(36.0lbs)



# PROBLEM X2

## Medical Devices



## Medical Storage Case(s)





# PROBLEM X2

## Medical Devices

- Single use
- Single purpose
- Not recyclable
- What you take is what you have
- Don't follow current medical best practices

## Medical Storage Case(s)

- Very bulky/large
- Single purpose
- Lots of little compartments
- Float away in low/or zero-g
- Not ergonomic
- Non optimal packing

# 3D PRINTING (IN SPACE)!

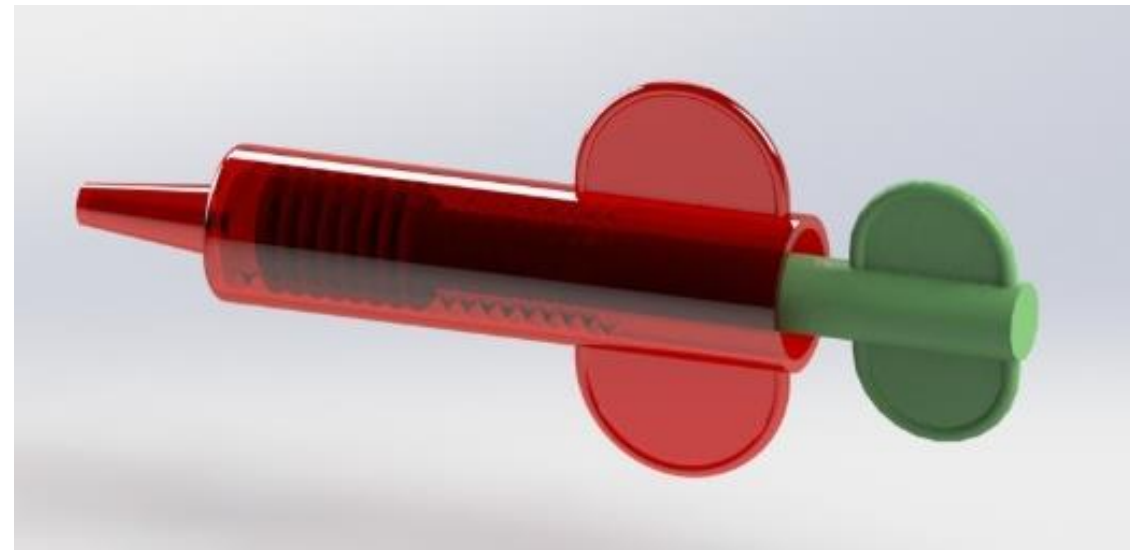
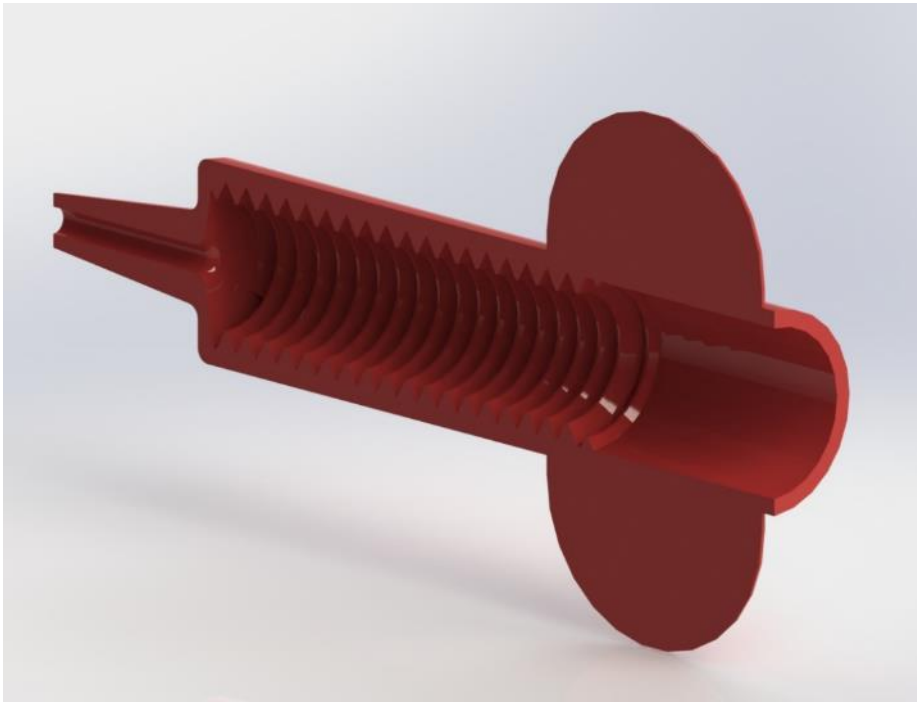
**Can create or replace many devices**

**Recycle many devices by re-melting**

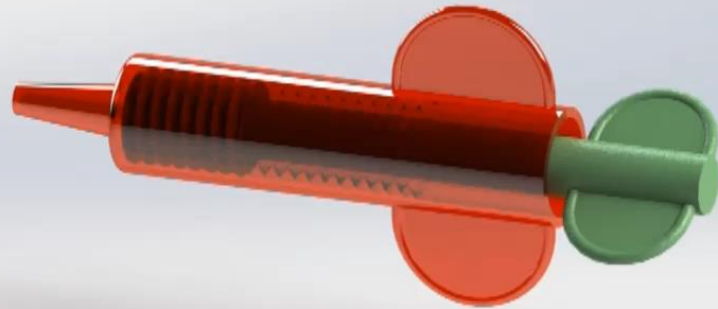
**Built-in sterilization (high-heat)**

- Standardization of common tools and handles
- Significant weight and packaging advantages
- Create new or modify existing devices for the environment

# NOVEL SYRINGE FOR 0g

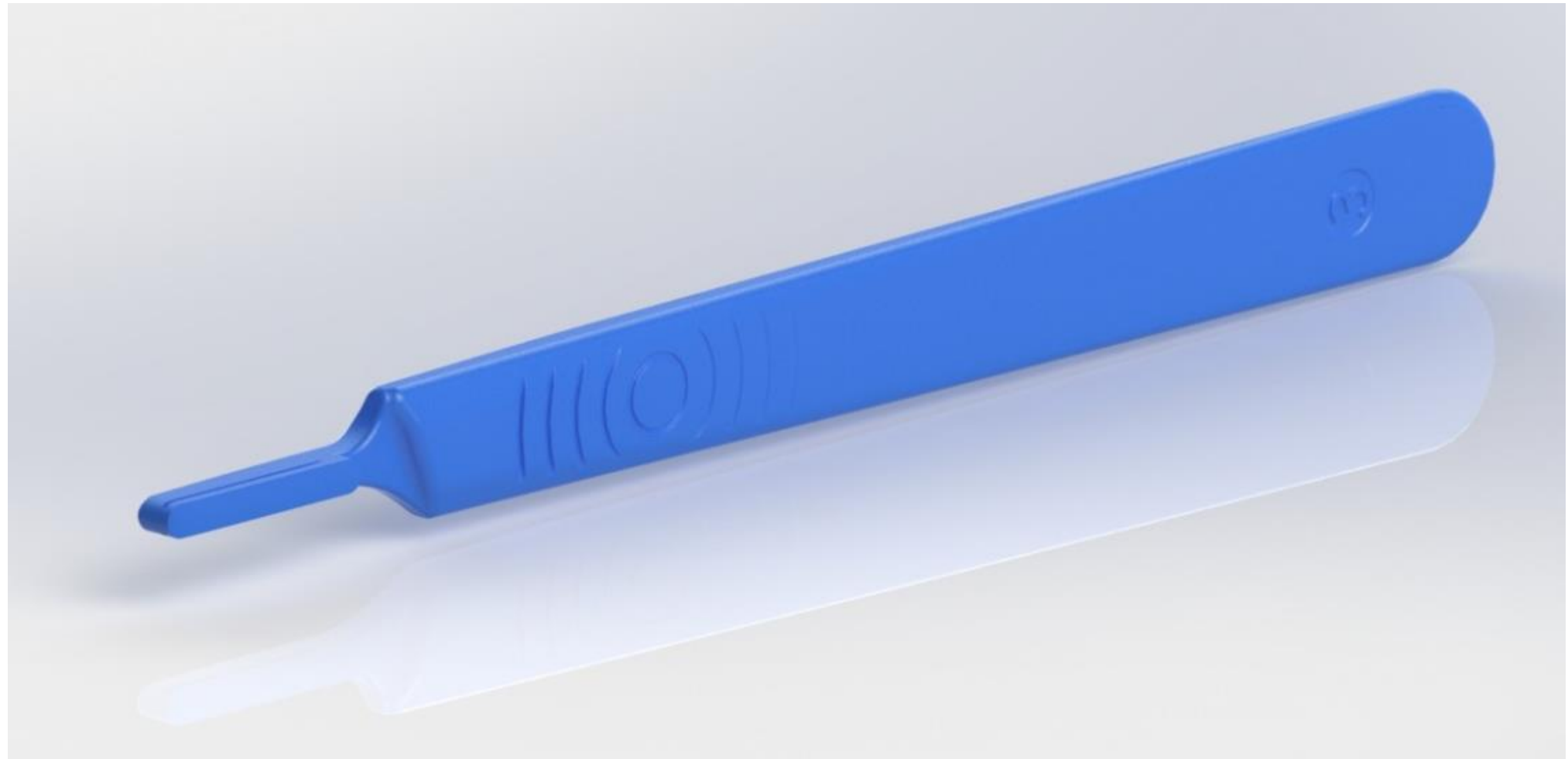


# NOVEL SYRINGE FOR 0g





# SCALPEL HANDLE



# SHORT LIST OF CANDIDATE DEVICES

- Syringe (3cc, 5cc, 10cc, 20cc)
- Magill Forceps
- Suction Syringe
- Luer Lock
- Tongue Depressors
- Bandage Scissors
- IV Flow Meter
- Splints
- Dental Probes
- Reflex hammer
- Capillary Bulb
- Tubex Injector
- Forceps
- Hemostats
- Needle Driver
- Nasal Speculum
- Finger Splint
- SAM Splint

# ADDITIONAL SUGGESTED KIT ITEMS

Based on battlefield, EMS, ER, ICU, and OR experiences

- Single person trauma kits (aka Israeli bandages)
- Single person hydration and electrolyte mixes
- UV Sterilization Kit
- Instant blood clotting kits
- Bone Vascular Access System (aka Bone IV)

# PACKING FOR SPACETRAVEL

- Metal, Ceramic, and Starter Kits + 3D Base Material
- 3D material high-temp heater and recycler
- Multi-use packaging
  - Example: Every scalpel blade wrapped in sterile gauze or bandage
- Our optimized flip-open / origami packaging

# PACKING AND STORING

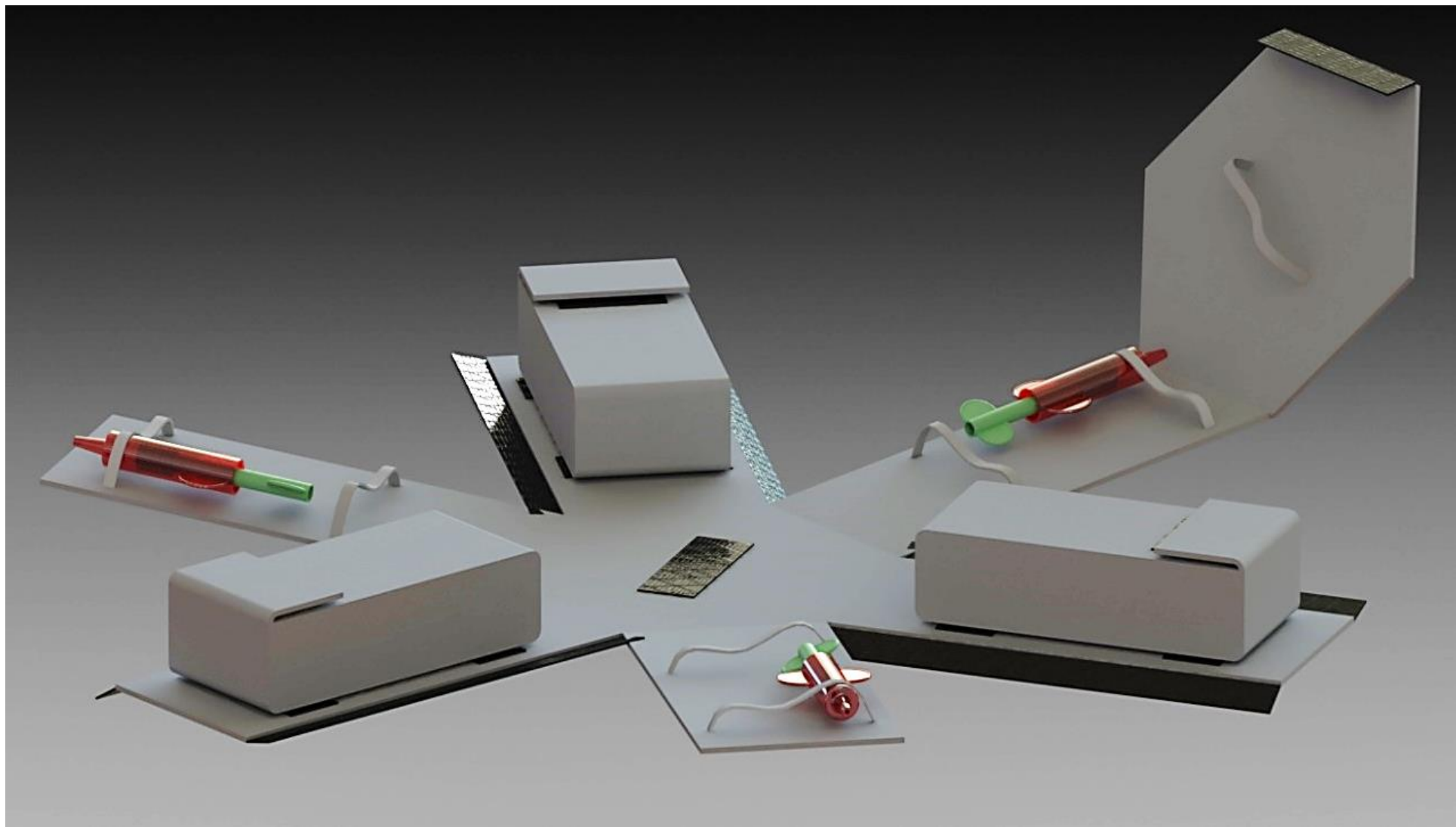
- Optimize packing and storage of individual medical kits
- Easy access to kits, while providing tight packing
- Provide a multi-use packing box that can itself be made into a bandage
- Easy to secure via Velcro to prevent floating away of instruments

# ORIGAMI STORAGE + MEDICAL DEVICES





# ORIGAMI STORAGE



# TEAM ROCKET MEDICINE

Eugene Malinskiy

Ilya Malinskiy

Daniel Dudley

Steve Mieskoski

Justin Nolan

(aka #spacenerds)

<http://github.com/dragonid/nasa3dmeddevice2015>



# cæléstis

A NOVEL APPROACH TO ASTROMED

