

HAPTIKFABRIKEN

SWEDISH HAPTICS FACTORY

A SHORT HISTORY

Haptikfabriken concluded on 2024-12-30 after three years, but the historical roots dates back to 2008. This short overview of the products gives an insight in what we did over the years.

While the business of Haptikfabriken is closed, you are most welcome to reach out for consulting assignments or IP inquiries directly to me at Forsslund Systems AB.

Jonas Forsslund, 2025-01-10
Former CEO and co-founder
jonas@forsslundsystems.com

History & Timeline

Forsslund Systems AB founded to commercialize Oral Surgery simulator prototype developed by Jonas Forsslund as Master Thesis project at KTH & SenseGraphics AB

4 Kobra Simulators sold to Riga Stradina University (1.8 MSEK).

Extra content developed for 100 kSEK

1 Kobra Simulator sold to university of Erlangen, Germany (0.5 MSEK)

1 Kobra Simulator sold to Chung Shan Medical University, Taiwan. Includes first Polhem (0.5 MSEK)

Total Sales:
10 Fullscale Simulators
2 Desktop Simulators
9 Polhem Haptic Devices
3 WoodenHaptics kits
2 Immersive Workbenches
1 Vintage Controller

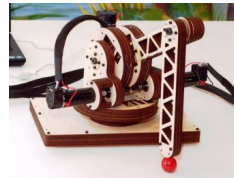


2 Desktop Simulators sold in partnership with Universal Simulation to ADEMA University, Spain

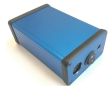


3 Kobra Simulators sold to Rostock University, Germany, and 1 to University of Mainz, Germany (2.1 MSEK)

2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024



2 Stand-alone Polhem haptic devices sold to Maxon Motors Sweden, and Tampere University, Finland

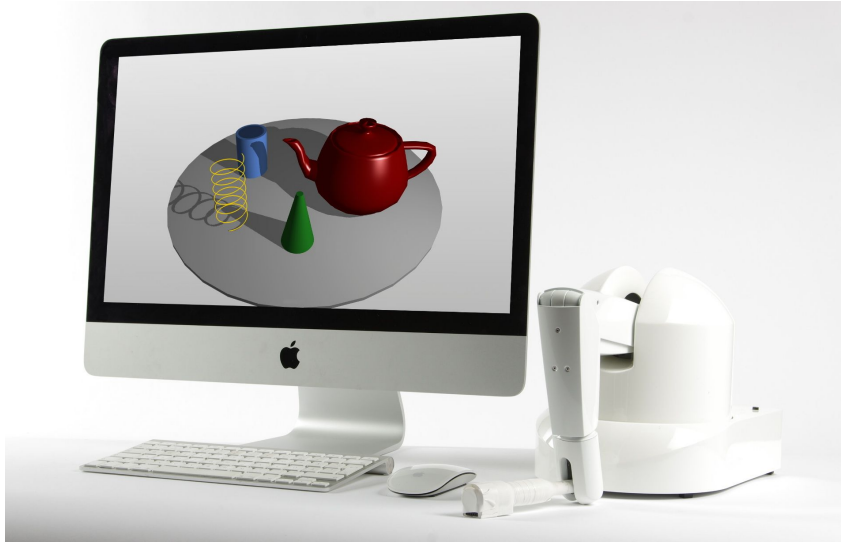


1 Vintage (Phantom) Controller sold to Stanford University



HAPTIFABRIKEN
 SWEDISH HAPTICS FACTORY

Polhem Haptic Device

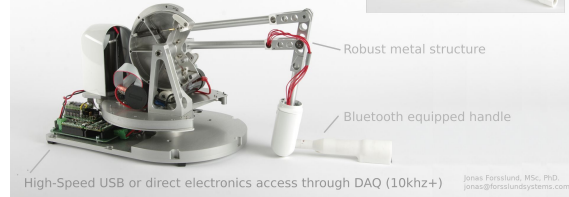


Polhem was introduced in 2019 (won best demo award at Euro-VR the same year). 11 units have been manufactured, 10 sold for 12.000 EUR each. *The device could be tailor made for a specific simulator requirements and manufactured in short series.*

IP: Mechanical design (CAD, simulations, know-how), electrical design (controls, sensors, PCB design), software (embedded firmware, API, integrations).
Know-how + complete supply chain of manufacturing of parts and components.
Note that patents for this kind of devices have expired.

Polhem haptic device

- 6 DoF input, 3 DoF force feedback
- Open Source firmware and API
- Fast customisations possible with modern fabrication methods



Background

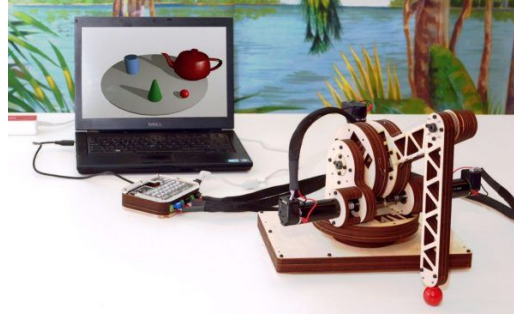
We saw a need for a more robust, high-force haptic device for our surgery simulator.

Jonas went to Stanford 2011-2013 as part of his PhD worked with prof. Ken Salisbury who invented the famous Phantom device. This led to first a WoodenHaptics device and after several prototypes the Polhem was born. It was continuously being improved and produced in small series, thanks to modern fabrication methods.

Other Products



Immersive Workbench



WoodenHaptics kit

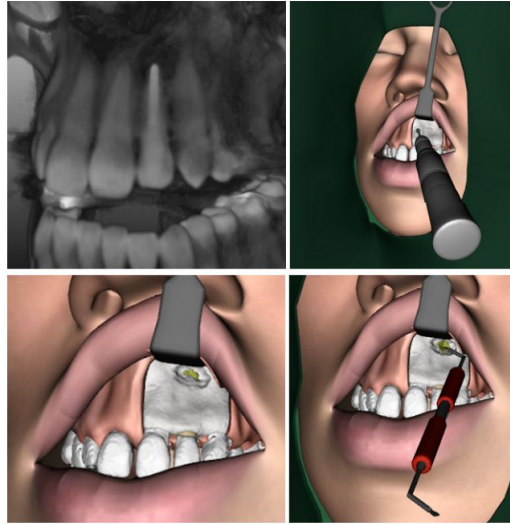


Vintage Controller

These products complemented our offering. Immersive workbench (2 sold) provides colocation view between haptics and 3D stereo vision so the user can feel objects where they are seen. WoodenHaptics kit is an open source haptic device for researchers (Ericsson made several to demo low-latency teleoperation). The Vintage controller uses our electronics to run old Phantom haptic devices from 1990s without large deprecated controller box (seen in picture). One unit was sold to Stanford University for research.

IP: Mechanical design, electrical design and firmware/API for integration. Know-how and complete supply-chain.

Kobra Oral Surgery Simulator



Kobra Simulator drives the sales of Polhem and has the highest margin. 10 fullscale simulators have been sold, The final design is from 2019, simplified for faster production in 2022.

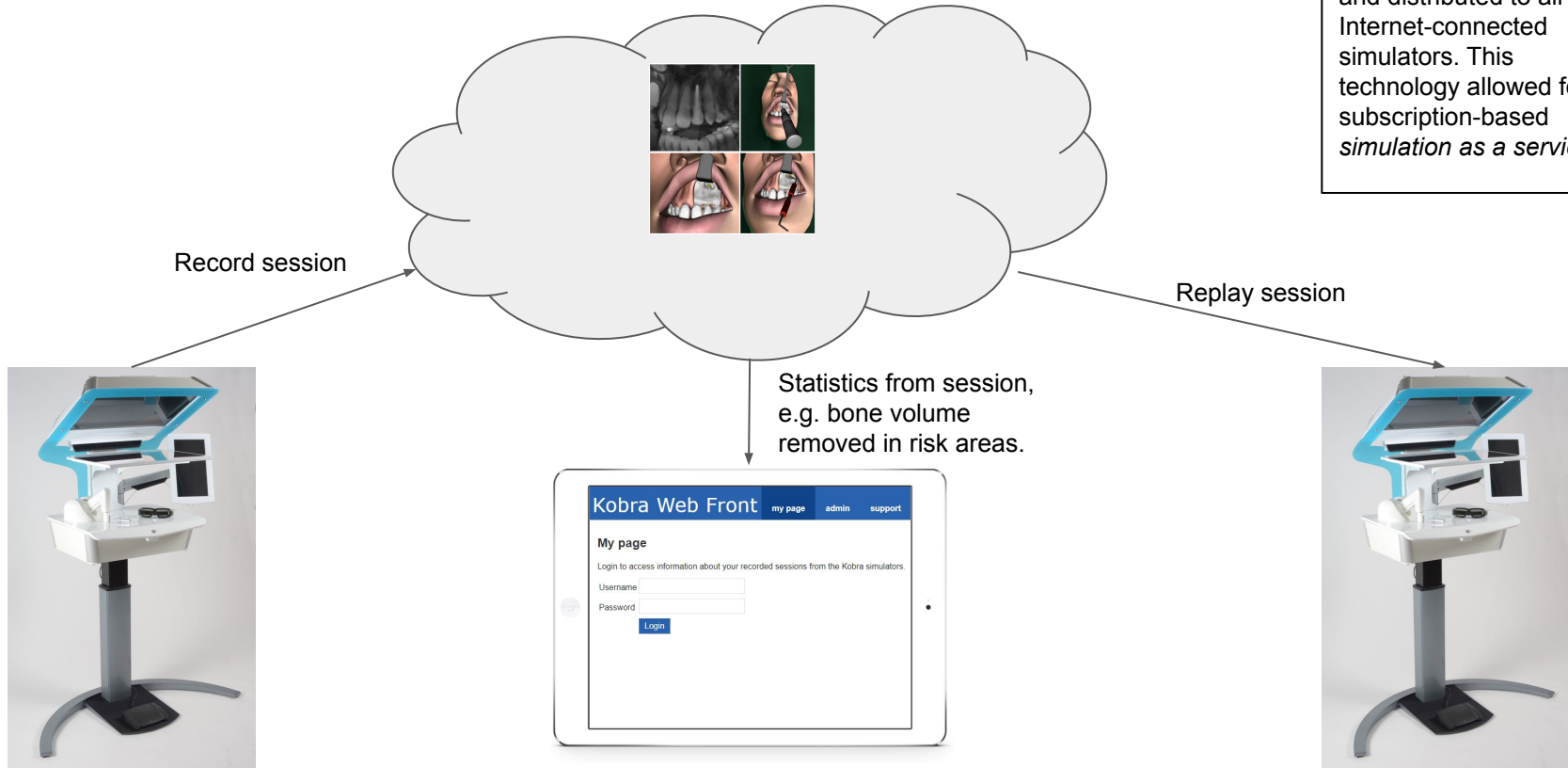
IP: Mechanical design, software, content



www.kobrasimulator.com

Kobra Oral Surgery Simulator: Cloud Cases

New patient cases could be created on demand and distributed to all Internet-connected simulators. This technology allowed for subscription-based *simulation as a service*.



IP: Software and know-how interfacing with e.g. Google/Amazon cloud services

Former Board Of Directors



Jonas Forsslund [linkedin](#)
PhD Human-Computer
Interaction & MSc Computer
Science KTH

Jonas graduated from KTH 2008 with a Master in computer science and engineering, and PhD 2016 with prof. Eva-Lotta Sallnäs Pysander. The Phd was partly conducted at Stanford University with prof. Ken Salisbury 2011-2013. His thesis *Preparing Spatial Haptics for Interaction Design* explores how advanced haptic technology can be used in creative design processes, in particular for surgery simulation. He works as a consultant, latest for the mobile game company King, and as an entrepreneur.



Martin Flodin [linkedin](#)
MSc Media Technology KTH

Martin graduated from KTH 2009 with a Master in Media Technology and engineering. His Master thesis was on the topic of shading in surgery simulators, in particular the oral surgery simulator Kobra. He worked several years as an IT consultant at HiQ before joining the public broadcast company SVT as a web engineer.



Johan M. Beskow [linkedin](#)
MSc Mech. Engineering KTH

Johan has 20 years of working experience in leading high tech companies providing the industry with reliable and high quality products within robotics, haptics, medical simulation and Virtual Reality. His main interests are international business and management, marketing and sales, product research and development. Johan was one of the founders of SenseGraphics (later acquired by Surgical Science) and now runs DevinSense, a provider of research technology.



Jonas Moll [linkedin](#)
PhD Human-Computer
Interaction, KTH
MSc Computer Science KTH

Jonas graduated from KTH 2006 with a Master in human-computer interaction and PhD in 2013 with a focus on collaboration in virtual haptic collaborative interfaces. He is now a senior lecturer at Örebro University partly focusing on the impact of utilizing haptic feedback in virtual learning environments that he develops.



Hans Forsslund
Oral & Maxillofacial Surgeon (retired)

Hans has had a long career as a Oral and Maxillo-Facial Surgeon. Among his positions he has served as head of the Oral and Maxillofacial department and Ophthalmology department at Visby County Hospital in Gotland. Former IT-strategist and telemedicine leader.

Thanks for all :)