Nuvotis WANTED

Hardware & Instrumentation Engineer (m/w/d)

Microfluidics · Spaceflight Payload Hardware · Bioprinter Development

Location: Frankfurt am Main (BMLS, Goethe University) **Start:** ASAP

About Nuvotis

Nuvotis is a Frankfurt-based biotech startup developing 3D-bioprinted human tissue models as alternatives to animal testing in preclinical drug research. We are currently part of a program to fly bioprinted tissue to Low Earth Orbit.

Role summary

A multidisciplinary hardware role spanning microfluidics, optics, electronics, and mechanics. Near-term, you build the fluidic system and spaceflight payload for our bioprinted gut model. In parallel, and growing over time, you help build, replicate, and improve our bioprinter, the instrument at the core of our business.

Part A: Spaceflight payload & microfluidics engineering

Near-term priority (Months 1–4, ongoing to Month 18)

- Design culture inserts & fluidic layouts for automated orbital handling.
- Develop continuous luminal/basal perfusion — injection and downstream sample collection.
- Integrate within strict mass/power/thermal constraints (small footprint, ~200 g, <10 W, 37°C, high-g return).
- Validate pumps, bubble-traps & fluidic stability during parabolic-flight testing.
- Multiplex 5–10 gut models per array; scale for orbital mission.
- Author safety/containment documentation to spaceflight payload safety standards (ECSS, NASA-STD-5018).
- Technical interface with our payload integration partner.

Part B: Bioprinter instrumentation

Ongoing, growing scope

Optical

- Align & characterize laser illumination/projection (beam shaping, galvo/DMD/SLM).
- Improve resolution, uniformity, throughput; document calibration routines.

Electrical

- Control electronics, laser/motor drivers, sensors for closed-loop print control.
- Embedded firmware & PCB work, telemetry/data logging.

Mechanical

- Precision motion stages, optomechanical mounts, thermal/vibration management.
- Design-for-manufacture for replicating additional printer units.

Cross-cutting

- Document build/calibration/maintenance for reproducible replication.
- Contribute hardware improvements.

Essential qualifications

- Engineering degree (mechatronics, biomedical, mechanical, electrical, optical/photonics, microsystems, or comparable).
- Hands-on across at least two of optics/electronics/mechanics, appetite to grow into the third.
- CAD, prototyping, assembly, bring-up, systematic debugging.
- 3D printing, rapid prototyping, complex CAD design.
- Microfluidic design/fabrication (soft lithography/PDMS, precision machining).
- Small-scale pumps, sensors, motion control.
- Systems thinking under hard volume/mass/power/thermal constraints.
- Rigorous, audit-ready documentation habits.
- Available to start immediately.

Desirable qualifications

- laser systems, galvo scanners, DMD/SLM, precision alignment.
- PCB design, motor/laser drivers, microcontroller firmware, telemetry.
- Precision motion stages, optomechanics, design-for-manufacture/replication.
- Familiarity with spaceflight/aerospace payload safety & qualification.
- Live cell culture or lab-on-chip integration, biosafety containment design.
- Self-directed, with the ability to structure and drive your own work..
- Fluent English; German a plus.

Why this role is unusual

Near-term work is dominated by the spaceflight payload program; the bioprinter workstream grows as we scale beyond it. A rare chance to own hardware across microfluidics, optics, electronics, and precision mechanics in one role, shaping a proprietary instrument from prototype to replicable product.

> **How to apply:** Send your CV and a short note on relevant hands-on projects to contact@nuvotis.com.

Human tissue, printed. Drug testing, reimagined.