

Georgs Narbutis

Mechatronics / R&D Hardware Engineer

Riga, Latvia, open to relocation

EU citizen, no visa required

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I design and build machines: the mechanics, the electronics, and the firmware in between. Most recently a benchtop SLS 3D printer at a company I cofounded, from first CAD to a machine that prints. Looking for mechatronics, robotics or R&D hardware work.

EXPERIENCE

Cofounder and engineering lead

Sep 2024 - Aug 2026

Optonics | additive manufacturing startup

Tartu, Estonia; Riga, Latvia

- Designed and built the mechanical system of a benchtop Selective Laser Sintering 3D printer, from the powder handling and recoater to the build piston. $195 \times 195 \times 240$ mm build volume in a $412 \times 412 \times 912$ mm machine: more build volume than a Formlabs Fuse 1+, in a smaller footprint.
- Designed the optical path and the heated chamber. A 450 nm laser diode sinters the powder, scanned by a galvo and f-theta lens. Chamber heating is split across eight zones, and a control loop reading an IR camera keeps the powder surface at temperature.
- Took it from first CAD to a machine that prints PA12 and TPU at 0.1 mm layers, for a bill of materials under €5,000. Video of it printing and recoating at georgsnarbuts.com.
- Ran a 4-person engineering team and raised €100,000. Optonics is part of the ESA BIC Latvia cohort.

Robotics specialist

Feb 2025 - Aug 2026

University of Tartu | Robotont open-source mobile robot

Tartu, Estonia

- Replaced the Intel NUC and RealSense camera with a Raspberry Pi 5 (16 GB), a Pi AI camera and a lidar. That cut the cost and the power draw.
- Built a custom Ubuntu 24.04 kernel for the board so the Pi AI camera works natively under ROS 2.
- Reworked the Gen3 mechanics around the new hardware for Robotont Lite and kept the whole chassis 3D printable. Published with the rest of the open-source platform.

R&D engineer

Jun 2024 - Feb 2025

Intellidry OÜ | agritech, crop sorting

Tartu, Estonia

- Built retrofit electronics and mechanical hardware that adds sorting-quality assessment to older crop sorters, installed and running on a working farm.
- Computer vision inference ran on site on a Raspberry Pi 5 with a Hailo-8L accelerator, fed by a global shutter camera, reachable remotely over 5G.

SKILLS

- Mechanical:** SolidWorks (CSWP), Fusion 360, Onshape; mechanism design, sheet metal, design for 3D printing and machining, thermal design
- Electronics and embedded:** KiCad, PCB design, STM32, ESP32, AVR/ATmega, FreeRTOS, I2C/SPI/UART, motor and heater drive, closed-loop temperature control
- Robotics and software:** ROS 2, Gazebo, Linux, custom kernel builds, Docker, Git, Python, C for firmware, MATLAB, LabVIEW
- Workshop:** 3D printing (FDM, SLA, SLS; Klipper), CNC and manual machining, sheet-metal fabrication, 3D scanning, SMD and through-hole soldering, reflow, PCB assembly, wiring; electronics debugging and rework
- Languages:** English (full professional), Latvian (native)

EDUCATION

MSc in Robotics and Computer Engineering, *cum laude* | University of Tartu 2024-2026

- Thesis: *Mechanical System of a Compact Selective Laser Sintering 3D Printer*

BSc in Bioengineering and Robotics | University of Tartu

2021-2024

- Thesis: *Holonomic Motion Drive System of a Social Humanoid Robot*

PROJECTS

photos and video at georgsnarbuts.com

- Omniball holonomic motion base** (2024, BSc thesis). An open-source drive platform for assistive and medical robots, carrying 65 kg and clearing door sills and floor gaps. Omniball wheels translate in any direction without turning first; almost every part is 3D printed.
- Mechanical-key calculator** (2024). QMK on an STM32, with a TM1638 driving the seven-segment display. Sold as a kit; they have shipped as far as Australia.
- Ball-balancing robot** (2025). Balances on top of a ball, driven by three omniwheels. 3D printed chassis, three brushed motors, ESP32-S3 running FreeRTOS. The loop reads an IMU and turns tilt into wheel speeds.