

# MONICA SPISAR

monicaspisar@gmail.com . github.com/msyvr . linkedin.com/in/monicaspisar . monicaspisar.com

## SOFTWARE SKILLS + PROJECTS + POSTS

Python, Go, Rust. NumPy, SciPy, PyTorch. MATLAB. SQL, PostgreSQL. Open Telemetry, Honeycomb, Datadog. Grafana, Prometheus. BigQuery. Rockset. Docker. Terraform. Tailscale. GCP, AWS. Git. Bash. Wireguard. Javascript, HTML, CSS.

**Projects** (GitHub): micrograd-python, ray tracers (Rust, Python), agentrix, multisource downloader

**Posts** (monicaspisar.com): Designing neural networks; Rust memory management; Go(lang) now!; AI in medical imaging

## TECHNICAL IC EXPERIENCE

**Recurse Center** Software craftsmanship & upskilling 2021.09 - 2021.12 & 2024.05 - 2024.08

Dramatically improved my software engineering skills in both batches at *'the writing residency for programmers'*.

2024: Foundations for machine learning, AI safety (mechanistic interpretability), memory-safe languages (Rust).

GitHub: micrograd-python, ruray. Designing neural networks: zero to micrograd, Rust: Notes on memory management

2021: Computer science fundamentals. Focused on backend engineering (mainly in Python, Go) and code craftsmanship.

github: raytracer (Python). Naive ray tracer implementation in Python

**Lantern** Software Engineer, Censorship circumvention systems 2022.03 - 2024.05

Rebuilt a data pipeline and migrated a data warehouse, reducing data storage and processing costs by 50%. Created dashboards (client metrics, ops, dev) crucial for securing O(\$MM) funding and reducing service outage durations O(10x).

Member of technical team managing distributed cloud infrastructure serving O(MM) users, around centralized blocking efforts. Go, Python, Rust, GCP, Docker, Terraform, Open Telemetry, Superset, Big Query, Honeycomb, Datadog, Tailscale.

**Kardium** Research Engineer (Employee #16), Medical devices 2008.11 - 2011.01

Led device performance characterization (computer simulations, lab), preclinical trial design, initial clinical evaluation for a class II device for sternal closure. Led deployment imaging design for a class III device for transcatheter mitral valve repair. Patents: 8888791, 9700363: Surgical instrument and method for tensioning and securing a flexible suture

**Biomedical Imaging Lab, Sorbonne University** Research Scientist (Postdoc) 2003.09 - 2004.09

Designed and built a microfluidics-based vascular flow model system for high resolution ultrasound imaging.

## LEADERSHIP + MANAGEMENT EXPERIENCE

**University of Oxford** Portfolio Manager / Scientific Liaison 2019.02 - 2021.07

Built \$1.2MM longevity bioscience portfolio: scouted, managed projects. monicaspisar.com/posts/hedging-bets-longevity

**Mineral Deposit Research Unit** COO 2013.10 - 2015.10

Led operations, finance (budget O(\$MM)). Co-led strategy, new initiatives. Board liaison. Planned, executed unit reorg.

**University of British Columbia** Program Manager & Industry Grants Officer 2011.04 - 2013.06

Delivered a translational training program. Negotiated and managed 200+ industry-academia agreements annually.

**Panne Rizo** CEO 2004.10 - 2011.01

Transformed micro-managed business into local retail/wholesale enterprise. Earned coveted Whole Foods supplier slot.

**Xoran Technologies** Early stage startup team member 2000.01 - 2000.11

Small footprint CT scanner. On early team, to seed funding (SBIR: \$250k/\$1.5M).

## EDUCATION + RESEARCH TRAINING

**University of Michigan** PhD, Biomedical Engineering (Medical Imaging)

Thesis: Optoacoustic detector arrays for medical imaging applications. Publications: Google Scholar: Monica Spisar

Designed, built, tested a laser-based ultrasound imaging system with novel detection technology. Met clinical

requirements, 10x sensitivity increase. Signal capture, image processing, image reconstruction, systems analysis.

**University of Toronto** BSc, Physics