Marketing Plan

Vishal Sood -- Senior Research Engineer

February 2026

1. Positioning Statement

Senior Research Engineer (PhD, Statistical Physics) with 15+ years building high-performance computational systems for scientific discovery. Deep expertise in designing parallel workflows for multi-terabyte datasets, reproducible scientific pipelines, and data-driven validation frameworks across neuroscience, genomics, and geospatial data.

Main experience: Architecting production-grade scientific computing platforms -- from HPC cluster orchestration (SLURM, 100+ nodes) to clinical-grade genomics pipelines (C++/Python) to interactive data analysis tools serving front-line researchers.

Area of expertise: The intersection of first-principles algorithmic thinking and software engineering. Translating complex research requirements into scalable, maintainable systems that accelerate discovery. Proven ability to adapt rapidly across scientific domains -- each career transition driven by the transferability of computational methods.

Personal qualities: Intellectually curious, rigorous, collaborative. Thrives in small teams where technical depth is valued. Communicates complex ideas clearly across disciplines. Committed to reproducibility, open science, and the thesis-proof structure: every capability claim backed by evidence.

2. Areas of Competency

Scientific Computing & HPC Systems

- Massively parallel workflows for multi-terabyte datasets (SLURM, Spark, Dask)
- C++ performance optimization for 100+ node clusters
- High-throughput pipelines with HDF5, Parquet, lazy-loading APIs
- Configuration-driven pipeline architectures for reproducible computing

Algorithm Development & Statistical Modeling

- Novel algorithms for pattern detection in high-dimensional noisy data
- Monte Carlo simulation, stochastic models, Bayesian methods
- Machine learning pipelines for scientific classification
- Network analysis, graph theory, computational geometry

Data Engineering & Knowledge Management

- FAIR data principles, metadata schemas, knowledge graphs
- Scientific data formats: HDF5, NRRD, Parquet, NetCDF, VCF, BAM
- REST API design for distributed data services
- Multi-database integration frameworks

Bioinformatics & Genomics Pipelines

- Genomic variant annotation and ACMG-based classification systems
- High-performance C++ backends for clinical-grade genomic analysis
- Integration of ClinVar, gnomAD, and proprietary databases
- Tools: Samtools, GATK, freebayes, Bioconductor

Scientific Workflow Development & Automation

- Reproducible, parameterized computational pipelines
- Automated report generation ("scientific narrative" engines)
- CI/CD for scientific software, containerized applications
- Batch management and intelligent job scheduling for HPC

Software Architecture & API Design

- Plugin-based extensible frameworks (Adapter Pattern)
- Advanced Python metaprogramming (metaclasses, descriptors)
- Declarative, self-documenting APIs for scientific tools
- Modern C++ (C++11/14/17) with functional programming paradigms

3. Target Market

Geographic area: Arc Lemanique (Lausanne, Geneva), extending to Bern, Zurich, Basel. Open to remote/hybrid arrangements.

Target industries:

- AI / Machine Learning platforms and infrastructure
- Life Sciences / Biotech / Computational Biology
- Scientific Computing and Research Software
- Quantitative Finance / Financial Technology
- Climate Technology and Earth Sciences

Company size: 10-500 employees preferred (startup to mid-size), also research divisions within larger organizations (EPFL, CERN, ETH, Roche).

Desired culture: Technical depth valued over process. Collaborative, research-friendly environment. Modern development practices. Small teams with direct impact.

Target roles:

- Senior Research Engineer / Scientific Software Developer
- Senior Quantitative Research Engineer
- Computational Biology Specialist / Bioinformatics Engineer
- Research Software Engineer / ML Infrastructure Engineer

Salary range: 140,000-170,000 CHF (flexible depending on role and company stage)

4. Target Companies

AI & Machine Learning (Priority: OMG!!)

- Anthropic -- frontier AI research (Research Engineer)
- Meta -- AI infrastructure
- Lakera -- AI security (Lausanne)
- Daedalean -- autonomous flight AI (Zurich)
- Visium -- applied AI consulting (Lausanne)

Life Sciences & MedTech (Priority: OMG!!)

- Isomorphic Labs -- AI for drug discovery
- Hedera-Dx -- cancer diagnostics, cfDNA
- Maxwell Biosystems -- neural interfaces, MEA platforms
- Adaptyv Bio -- protein engineering
- Alithea Genomics -- RNA sequencing
- NVIDIA -- computational biology / Clara platform
- Hilo by Aktiia -- health monitoring

Quantitative Finance (Priority: SUPER!)

- IMC Trading -- Python infrastructure, digital assets (Zug)
- SwissQuant -- quantitative risk analytics
- Evooq -- wealth management technology
- Keyrock -- algorithmic trading
- PartnerRe -- reinsurance analytics

Academia & Research (Priority: SUPER!)

- EPFL -- scientific computing, Blue Brain legacy
- CERN -- data engineering, physics computing
- ETH Zurich -- computational science
- FMI Basel -- computational biology
- University of Bern -- research engineering

Climate & Science Tech (Priority: WHY NOT!)

- Jua -- AI weather prediction
- TetraScience -- scientific data cloud

Hardware & Quantum (Priority: WHY NOT!)

- Corintis -- semiconductor technology
- Zurich Instruments -- quantum computing control
- ANYbotics -- autonomous robotics

Software Development (Priority: WHY NOT!)

- SonarSource -- code quality (Geneva)
- Bending Spoons -- consumer apps
- Thomson Reuters -- information services

Startups to Watch (2026)

- Cradle -- AI protein design
- Neural Concept -- AI for engineering simulation
- Synthara AG -- neuromorphic computing
- Cerrion, EthonAI -- industrial AI
- Bloom, DeepJudge, Mentiora AI -- AI-native software

5. Action Plan

Weekly targets:

- 2-3 tailored applications per week
- 1 networking conversation (coffee, LinkedIn, meetup)
- 1 technical contribution (open source, blog post, or portfolio improvement)

Active channels:

- Direct applications via company career pages
- Recruitment agencies: ComputerFutures, SwissPeak-Partners
- LinkedIn networking and content
- Personal website with AI-powered portfolio

Upskilling (ongoing):

- RAG systems and applied AI engineering
- Cloud infrastructure (AWS, Docker, Kubernetes)
- Modern ML frameworks (PyTorch, JAX)

Networking strategy:

- EPFL / ETH alumni events
- Swiss AI and data science meetups
- Direct outreach to hiring managers via LinkedIn

Recruitment agency engagement:

- ComputerFutures -- specialist tech staffing
- SwissPeak-Partners -- senior tech placements
- Proactive sharing of tailored resume variants per opportunity