



Job Title: Scientist I, Computation Protein Design

Location: Boulder CO (onsite/hybrid/remote options available)

Reports To: VP Data and Information Systems

About Alta:

Alta Resource Technologies (Alta) is a next generation mining company that uses synthetic biology to separate critical minerals from conventional and unconventional resources, including e-waste. Founded in 2023, the company is expanding its team in Boulder, CO.

The exponential growth of new tech industries, as well as the information technology sector, are driving historic growth in mineral demand and stressing existing supply streams. Meeting new demand, diversifying the supply chain, and producing minerals in a more sustainable manner requires the rapid development, deployment and scaling of new technologies. This mineral challenge represents a historic opportunity for technology development and value creation. Alta is proud to be at the vanguard of this mega trend.

About the Role:

We are seeking a highly skilled **Scientist I, Computation Protein Design** to join our team and drive innovation in protein design and engineering through good data practices, robust analytical methods and machine learning. This role focuses on leveraging and optimizing foundational AI models to accelerate our protein engineering pipeline. The ideal candidate will have deep expertise in model fine-tuning, evaluation, and selection, with strong data engineering capabilities to support cutting-edge computational biology research.

Key Responsibilities:

Model Development

- Fine-tune, adapt, and use foundational protein models (e.g., BoltzGen, ESM, OpenFold derivatives) for protein engineering applications
- Develop and implement rigorous evaluation frameworks to assess model performance, including metrics for protein structure prediction, sequence optimization, and functional property prediction
- Conduct comprehensive benchmarking studies to identify and recommend the most suitable foundational models for various protein engineering tasks
- Design and execute computational experiments to validate model predictions against experimental data
- Leverage multiple information sources (including bioinformatic, structural, simulations, and experimental performance data) to improve internal models and develop agentic

frameworks

Cross-functional collaboration

- Collaborate with the Applied Biology team to translate models into actionable insights.
- Create technical documentation including model assumptions, equations, validation results, and recommendations.
- Provide technical mentorship and review for junior engineers and scientists.
- Clearly communicate technical findings, risks and recommendations to leadership and project stakeholders.

Data Management, Analysis and Integration

- Contribute to developing data management systems that meet FAIR principles.
- Develop analysis code to support the team in analyzing experimental data.
- Engineer data into vectorized format for MCP integration
- Utilize experimental data to validate and improve model development.

Required Qualifications:

- Ph.D. in Computational Biology, Bioinformatics, Computer Science with 1-3 years of relevant industry or post-doctoral experience, or M.S. with 6+ years of relevant industry experience
- Hands-on experience with protein foundation models such as ESM-2, ESM-3, ProteinMPNN, RFdiffusion, AlphaFold, or similar architectures
- Knowledge of protein design software and molecular modeling tools (Rosetta, PyMOL, Chimera)
- Demonstrated experience fine-tuning and working with large-scale machine learning models, preferably protein or biological sequence models
- Strong proficiency in Python and modern ML frameworks (PyTorch, TensorFlow, JAX)
- Experience with model evaluation methodologies, including cross-validation, performance metrics, and statistical analysis
- Solid understanding of protein structure, function, and the principles of protein engineering
- Experience with high-performance computing environments and GPU-accelerated computing
- Strong communication skills and ability to work collaboratively in interdisciplinary teams
- US Citizenship required.

Preferred, But Not Required:

- Experience with workflow management tools (Nextflow, Snakemake, or similar)
- Familiarity with cloud computing platforms (AWS, GCP, Azure) and containerization (Docker, Singularity)
- Experience with distributed computing frameworks (Dask, Ray, Spark)
- Track record of publications or contributions to open-source projects in computational biology or machine learning

What We Offer:

- The opportunity to lead a breakthrough program redefining U.S. supply chain resilience in critical materials.
- A mission-driven, high-trust team operating at the intersection of innovation, national security, and sustainability.
- High Impact & Visibility: Direct interaction and reporting to executive leadership.
- Competitive compensation and benefits package.
 - The starting pay range for this position is \$140,000 to \$175,000 commensurate with educational background and work experience.
 - Benefits including, 401(K) medical, dental, and vision plans, or equivalent, will be provided.

Interested? Apply now! We look forward to hearing from you!

How to Apply: To apply, please email your resume and a cover letter (see below) to talent@altatech.io. Include your name and the job title in the subject line (i.e., [Your Name] – [Job Title]). All applications must include a one-page cover letter. The cover letter should clearly state your interest in the position and our company, outline 2–3 specific skills or accomplishments relevant to the role, and demonstrate how your experience aligns with our mission and technology platform. We expect concrete examples that illustrate measurable impact and collaborative problem-solving in technology development. Applications submitted without a cover letter will not be considered.

EOE

At Alta, we are committed to diversity and inclusion. As an equal opportunity employer, all qualified candidates will be considered for employment without regard to race, color, creed, religion, age, sex or gender (including pregnancy, childbirth, lactation and related medical conditions), gender identity or gender expression, sexual orientation, marital status, national origin, ancestry, citizenship status, military service or veteran status, physical or mental disability, or any other legally protected characteristic. Alta participates in e-Verify for all positions.

If you have a disability or special need that requires accommodation at any point in the hiring process, please let your recruiter know.