

About: Divergene is a local biotechnology company that designs and develops next-generation sequencing (NGS) bioinformatics that accelerates gene/cell therapy and editing. We provide custom NGS bioinformatics pipelines and genomic data analyses for biopharma, CRO, CDMO, and government agencies. We frequently help with biomarker discovery, genetic target diligence, building NGS analytical pipelines, integrating public and client-generated NGS datasets, data visualization, and more. We are committed to improving the lives of people affected by genetic disorders and positively impacting patients.

Purpose: The successful candidate will have the opportunity to gain hands-on experience in a diverse, industry-based environment including bioinformatics, marketing, copywriting, grant writing, and business development. As part of a small but mighty team, they will contribute to the advancement of gene/cell therapy by working on various projects that will allow them to showcase their research and analytical abilities. All internships are remote.

Bioinformatician Internships:

Project 1 Description: In the gene therapy space there is a growing need for improving the quantification of gene delivery systems at the single-cell level, as this is pivotal for their therapeutic applications. The high throughput of single-cell sequencing technology allows a rapid survey of cell types expressing the designed gene delivery systems in a quantitative manner. Single-cell sequencing provides the full transcriptome (15-25K) per each of the 500 -10,000 individual cells per sample (scRNAseq) and the genome-wide chromatin accessibility (scATaseq). This multidimensional data can be used to assess the mechanisms of action for gene delivery systems, their specificity, and ultimately their therapeutic potential. We would like to improve our single-cell bioinformatic pipeline offerings for technical artifact identification, cell annotations, and exogenous gene quantification (gene delivery systems). This would require testing the latest algorithms, selecting a solution based on pro/con analysis, and implementing a production codebase in our already existing cloud environment (AWS).

Project 2 Description: NGS has become readily available; however, the industry is still lagging behind on ways to interact with these large amounts of data. It is crucial for advancing therapeutics and diagnosis that scientists readily extract meaningful biological findings from such databases. To aid in this effort we would like to continue the creation of interactive dashboards that allow our clients in the pharma and biotech space to quickly view their results and share them across teams. At Divergene we have several bioinformatic pipelines built but only a few have dashboards that extract key scientific insights. We would like to structure our databases better, select relevant metrics, systematize our visualizations, and improve the user experience.

Project 3 Description: Nanopore sequencing is a recently developed DNA sequencing technology that is cost-effective. Another unique feature of this type of technology is that it can achieve short to ultra-long read lengths of DNA, making it amenable to several applications. However, nanopore sequencing tends to be error-prone with error rates as high as 15%. At Divergene we would like to adopt this cost-effective technology and make it available to our partners and clients in the biotech space. We are interested in developing a bioinformatic end-to-end pipeline that uses reads from nanopore instruments and provides error-corrected insights. The intern will help to assess which of the already available bioinformatic algorithms best detect technical errors while minimizing computational cost. Furthermore, the intern will summarize their findings for our internal benchmarks, and implement this on AWS.

Skills:

- Experience with NGS analysis including building analysis pipelines to support analysis in Linux/UNIX environment (preferred)
- Understanding/course work on one or more: computer programming, statistical modeling, or machine learning.
- Familiarity working in Linux/UNIX environment, including shell scripting and bash.
- Proficiency in a programming language: Python, Java, C++
- Appropriate verbal and written communication skills to function within a professional work environment.
- Attention to detail, time management skills, and ability to work independently and as part of a multi-disciplinary team with a high level of personal and professional drive and initiative
- Excellent troubleshooting and problem-solving skills, including the ability to learn new software or tool quickly.

Business Development Internship:

Project Description: To identify and evaluate new business opportunities, and expand the company's customer base. Collaborate with management to identify new prospects and construct compelling arguments for pursuing these opportunities. Conduct research to identify potential partner organizations and individuals, and possibly provide support in establishing partnerships. Conduct market research and identify trends, growth areas, and potential business opportunities. Assist top management in the creation of various deliverables, such as financial projections, presentations for investors, and executive-level presentations. Implement the business development plan and monitor progress toward meeting targets. Perform additional duties based on the student's area of interest and the Divergene's needs for commercialization.

Marketing Internship:

Project Description: To increase sales and brand awareness for Divergene by launching a comprehensive marketing campaign that covers various channels (social media, email marketing, google ads, LinkedIn ads, etc.) and target audiences. Utilizing AI to generate content for Twitter and LinkedIn to reach the target audience and drive engagement. Sending regular newsletters and promotional emails to existing and potential customers to keep them informed and interested in Divergene's services. It is creating and publishing engaging SEO blog articles, videos, infographics, and other content to attract and retain customers. Partnering with relevant KOLs to reach a wider audience and increase brand exposure. Hosting events and running promotions to generate interest and drive sales. This marketing campaign will run for the duration of the internship and will be reviewed regularly to measure its effectiveness and make any necessary adjustments. The success of this marketing campaign will be measured by an increase in sales, a rise in brand awareness, and increased engagement from the target audience.

Scientific Copywriter Internship:

Project Description: To create a range of scientific content for Divergene's website, research paper, conference abstracts, and marketing materials. The goal of the project is to educate the public and potential investors about Divergene's cutting-edge technologies. The ideal candidate will have a strong background in scientific writing and the ability to translate complex scientific information into clear and engaging language. Write compelling, accurate, and accessible scientific content for a variety of audiences, including laypeople and experts. Write compelling copy for websites, brochures, white papers, infographics, and other marketing materials. Knowledge of science communication best practices, including writing for SEO and blogs is preferred.

Grant writer Internship:

Project Description: To research and identify funding opportunities through the Small Business Innovation Research (SBIR) program and other funding programs that align with Divergene's research and development initiatives. The intern will write compelling and persuasive grant proposals including letters of inquiry, concept papers, and other fundraising materials that align with Divergene's research and development goals. The intern will collaborate with Divergene's technical experts to gather information, data needed for grant proposals, and ensure all grant proposals are compliant with SBIR program requirements. The candidate will manage the grant application process from start to finish, including submitting proposals, following up with funders, and reporting on grants awarded. Knowledge of the SBIR program and grant writing best practices is preferred. The ideal candidate will have a strong background in grant writing and a passion for making a positive impact on the community.

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