

February 4, 2007

Dear Dr. Weinstein,

I am looking for a full time summer position at your research lab.

Let me relate to you a bit of personal history pertaining to the present state of my academic studies. I began studying music at the age of thirteen. Henceforth I have pursued at length the study of guitar technique, music theory, and most recently jazz. Music became a central part of my life, it was my first focus of intense study. Before studying music, I had no interest in studying anything at all, let alone putting effort into school work, which I perceived as silly and useless toiling, comparable to factory labor.

Through music I began learning of life. Music was my first real introduction to self-discipline and my capacity to teach myself, and it was also my window into the social and psychological dynamics present in the world. After spending several years studying music and music theory, I began to believe that music is at the root of all of existence, that everything is fundamentally music. To investigate the validity of my view, I began reading books about subjects which were foreign and new to me, the foremost of which being physics and eastern philosophy. These books were somewhat confirming my music-centric world view, and also teaching me the ways in which subject areas still more distant from music are essentially music at their core.

In the eleventh grade, I took my first biology class. Biology was totally new to me, and I approached it with my usual lack of enthusiasm for academics. I soon realized, however, that this course was unlike any other I had taken in school. It did not claim to be an ultimate unquestionable authority on some man-made contrivance, which was how I had previously perceived my courses. Biology instead was like music, with a large body of knowledge and works, but yet still fresh and intriguing to the mind with it's seemingly infinite depths and unexplored possibilities. I was inspired immensely by this biology course. I could recognize numerous elements of music at play within biological systems, but recognized also that biology cannot be reduced to "musical" phenomena.

This came as a great surprise to me, and served as a catalyst for a revision of my perspective. My interest became to search for what is the underlying nature of everything, because I learned that it was not limited to music. I began to question my own assertions that all things within school are man-made contrivances. I learned to accept teachers as human beings, and not let personal grudges against them influence my perception of the subject matter itself. Henceforth I have adopted the view that subjects of academic study are in actuality probably not man-made contrivances, but may very well lead to insight into the underlying nature of everything, and deserve a thorough inspection.

In the summer following the eleventh grade, I was afforded the opportunity to work at a biology laboratory at University of Massachusetts Medical School as an unpaid research assistant. This was an incredible experience, and my window into the world of biological science research. I worked for Dr. William Theurkauf, assisting graduate students with experiments in fruit flies. We were studying the role of RNAi (RNA Interference, a method of gene silencing) components in embryonic axis specification and related phenomena. I found the tasks at hand and the work as a whole unspeakably fascinating, and decided to pursue a course of study in biology.

I took a course in computer programming senior year of high school. I developed a great lust for programming, especially for creating beautiful graphics such as fractals, visualizations of mathematical functions, or simulations of dynamical systems. I observed that computer science has great depth, and shares a multitude of concepts with biology and music. Like music, the creative aspect of programming brings personal gratification and satisfaction. Unlike music, programming is at the same time very practical, and can be used to solve many problems. Programming and the study of computer science is very appealing to me because of this combination of infinite creative possibility with practicality. However, using the power of computing to solve the mysteries of biology has far greater appeal. This is why I chose to pursue the study of bioinformatics in college.

In my tour of potential colleges, I attended an open house at the University of Massachusetts Lowell. After discussing bioinformatics and various academic matters with me, Professor Georges Grinstein offered me a summer job as a software developer at the Center for Biomolecular and Medical Informatics (CBMI). I accepted his offer. This was an incredible experience, and my window into the world of computer science research. I worked with graduate student Howard Goodell on implementing a state based session history framework in the Universal Visualization Platform (UVP). The UVP is a versatile data visualization platform, implemented in the Java programming language, developed by the group. From this work came my first publication, "Collecting and Harnessing Rich Session Histories." I continued working for Professor Grinstein through my freshman year.

In the interest of unifying what I had learned from music, biology, and computing, I began studying complex systems and chaos theory. I am intrigued by how their ideas are so relevant to many disciplines, such as music, biology, computer science, physics, psychology, and eastern philosophy. During the winter break between semesters, I attended a week long intensive course in the Dynamics of Complex Systems held at the Massachusetts Institute of Technology (MIT) taught by Dr. Yaneer Bar-Yam, founder of the New England Complex Systems Institute (NECSI). After the course ended, Dr. Bar-Yam invited me to work for him as a part time volunteer software developer. I accepted his offer. This was an incredible experience, and my window into the world of complex systems research. Our group was developing a model for simulating large-scale socioeconomic dynamics of the world. After this experience, I was convinced that I would somehow like to integrate the study of complex systems within my academic studies in bioinformatics.

At the present, I am a bit bewildered at the vastness and disparate nature of the world, and I am tremendously excited about the potential of life, about learning and growing. Therefore I believe it is the perfect time to travel, to see how people are living and what reality is on the other side of the world. I would like to travel to Germany in 2007. I plan to participate in a Language and Cultural Studies program in Giessen at the Justus Liebig University for the full month of September, then study at TU Darmstadt for the full academic year. When I am not studying, I would like to travel and work in a research lab.

Now that you are somewhat familiar with my interests, I ask again if you would offer me a full time position with your group for the summer of 2007. Thank you very much for your consideration.

Sincerely,

Curran Kelleher