

Essay #25: "Where Drive and Talent Can Take you – Biomedical Engineering"

Molecular Biophysics Sequence

problem).

aledictorian of my

of Science Olympiad proved that it could be done.

y, not just because

vanced courses like 03-510 (Computational Biology) and 42-680

am scheduled to take biochemistry and second organic chemistry

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inven on of DNA-based computers and biochips. In each case, a biological engineer working alone could not have carried the project to fruition.

I have always strived to complement my education/experience with computational approaches with fundamental biology. I have gained experience in biology both at the molecular level and at the systems level which allows me to see the big picture. When chosen by the Ohio governor to represent the state at the Lawrence Berkeley Laboratory for a program on "Life Sciences and Biotechnology." Here, I attended both lectures and did lab work involving cutting edge biotechnology. Professors included Dr. Marian Diamond, Nobel Prize winner, Dr. Glenn Seaborg, Dr. Sylvia Spenger (on the Human Genome Project). Dr. David Klapper and Dr. Jeff O'Neil (Calgene). At a summer course at Case Western Reserve University entitled "Biotechnology and Genetic Engineering," I gained additional experience with experimental techniques.

From the aforementioned programs, I have gained experience with a variety of biological techniques as electrophoresis, Southern blots, transformation, cloning, recombinant DNA techniques, PCR, chromatography, and sequence analysis.

Name your advisors.

Make a laundry list of laboratory skills.

## POSTGRAD ADMISSIONS ESSAY

class/lab work and various programs, I have become knowledgeable in computer techniques used in biology such as coding region identification (via base composition, codon bias/preference, etc.), BLAST/FASTA algorithms for sequence match scoring methods, multiple sequence alignment, general similarity and homology methods (e.g., dynamic programming, dot-matrix methods, usage of hashing), secondary structure prediction (methods like Chou-Fasman, Garnier-Osguthorpe-RobOP1 (o)-( Ga304-e4 011E0003-B5) (b0131.283 -1.M)(F)23A ( sE0003-B5.0)-0.85-3.3 5-5.1 20 Tw -5an)

## POSTGRAD ADMISSIONS ESSAY

forth a new idea, I also implemented it in a prototype and wrote the first draft of the patent (which I presented to the other co-investors for input). The patent was submitted to the patent office in July after approval by the Motorola review committee.

I also have experience in writing, a skill which is obviously imperative for researchers who wish to communicate their findings with others. As a writer for several