

Prashanth N. Suravajhala

# Your Passport to a Career in Bioinformatics

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*To my Mother*  
*Nirmala Sastry*

# Foreword

When I first heard about the field of bioinformatics, I was a university senior majoring in chemistry. It was 1995, and my intention at the time was to focus on the application of chemistry in the life sciences. In fact, in those days I was interested in any field of science or engineering that could be applied to biology.

But, when it came time to select a project for my senior thesis, I was asked by my thesis adviser if I had an interest in computers. Certainly, I did. I had a year of computer science courses under my belt, but I also had an avid interest in computers as a hobby—I wrote my first BASIC program circa 1981 on a friend’s Atari 800. And, so my adviser proceeded to tell me that there is this nascent field called “bioinformatics”, which is a hybrid of computer science and biology.

I immediately fell in love with the idea that I could combine a professional interest of mine with a personal one. And, from then on, even through graduate school, all of my research projects involved programming. Not one required that I stand at a bench with a micropipette, as I knew I would be doing as a biochemist.

Of course, it did not go over so well with many of the professors back then that a student would pursue a degree in either biochemistry or biology with a purely computational project. In the 1990s, there were just a handful of degree programs in bioinformatics in the whole world—one of them halfway around the world from where I lived. But, I limited my own geographical options, and it seemed that my only choice was to pursue a graduate degree in “traditional” biochemistry and find an adviser and laboratory group that had an interest in performing computational analyses on their data.

Fortunately for aspiring scientists today, there are many straightforward ways to enter the field of bioinformatics. To that point, there are scores of degree programs throughout the world—many of them online degrees.

And, there are other ways to further one’s own career as a bioinformatics practitioner. For one, there is the Bioinformatics.Org website, of which I am the founder, with Prashanth Suravajhala among the directors. Prash also founded Bioclues.org and has been active in mentoring students online regarding their academic projects in bioinformatics. It is because of this experience of his, that I think you will be enlightened by the insight that Prash shares within these pages.

J. W. Bizzaro  
President, Bioinformatics.org

# Prologue

*Today we define success by publicity and bank accounts. But that's not really success at all. Don't believe the hype. Success is ephemeral. You have to define it yourself.*

Chris North

*Most people would succeed in small things if they were not troubled with great ambitions.*

Henry Wadsworth Longfellow

Any new word invites inquiry, excitement and sometimes disdain and so was bioinformatics, at least in developing countries. Theoretical bioinformatics although born in the 1980s, has flourished ever since, as many new academic and empirical developments with focal point on wet-lab research confirm. Bioinformatics is now regarded as a tool but fantasized as a familiar science even by few scientists who have had track record of early career building. With research on bioinformatics mushrooming, both theoretical and wet-lab based bioinformatics aided works are often deemed very procedural and paraphernalia that these are not easily accessible to those who want to use the “tools for biology”. Additionally, the career-driven paths using bioinformatics is tacit by the fact that one needs to attend to earn programming skills which is not always the case. This book aims to be an interface between those who aim for bioinformatics and apply research with focus on Q and A on career growth. *A great saying goes “If you want more, you have to require more from yourself.”* This also applies to bioinformatics. Happy reading!

Prashanth N. Suravajhala

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My peers in Bioclues.org and bioinformatics.org, ex-colleagues and researchers in India, Denmark, US and Japan, countless “e-colleagues”, also contributed to my discussions. I sincerely thank Cox Murray, Jeff Bizzaro, Madhan Mohan and Pawan Dhar who were generous enough to have responded to the questionnaire.

My grandparents—Shri D. S. Sastry and D. S. R. Murthy are always remembered with fond love and affection. They have helped me in imparting clarity, coherence and brevity, to the text.

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