BY AANAND KRISHNAN ('95)

WHEN ACADEMICIANS BECOME ENTREPRENEURS

THE SECOND IN A SERIES OF PROFILES

Inventor of India's most famous PDA – The Simputer, Founder of India's first VC funded bioinformatics company – Strand Genomics and Pico Peta – listed by MIT as one of the 7 most exciting university spinoffs globally, and recipient of the highest honor for Innovation in India, the First Dewang Mehta Award, Professor Vijay Chandru has some outstanding learnings for us all in this somewhat nostalgic, somewhat outspoken, gripping interview.

Let's start with your memories of BITS.

It has been more than 25 years since you graduated from BITS. How do you recall your BITSian days?

Very fondly! I grew up all my life in Chennai, though my mother was from Andhra and my father, from Bangalore. In those days, BITS had very few students from the south and one had to get adjusted culturally.

I didn't like the basic courses in physics, math and chemistry in the first few semesters. I came to my own after we started to concentrate on core discipline courses in Electrical and Electronics. We used to share books that were loaned to us from the BITS library, because books were so expensive in those days.

Three incidents during my BITS days are firmly imprinted in my memory.

Listening to Stafford Beer lecture about Cybernetics and Operations Research - I ended up doing my PhD in Operations Research

Acting in Edward Albee's "The Zoo Story" with JK on the Museum Lawns (Teaching/Lecturing has always felt like being on stage)

An evening of music in my hostel room with Dinesh Sharma (Panditji) singing and playing the harmonium, and Ashok Pati playing the tabla. I recorded this session and have played the tape whenever I needed inspiration.

We had three strikes during my time at BITS, one in the very first year. Mayur, which later became Oasis, was started during our time.

As far as extracurriculars were concerned, I was captain of the BITS cricket team and part of the swimming team. I was also actively involved in the English Drama Clubs and directed and acted in a number of plays.

Photo credit: Annanova

Name: Dr. Vijay Chandru (back)

Academic Positions: Professor of Computer Science & Management, IISc Bangalore, Honorary Professor, National Institute of Advanced Studies

Business Position: Founder & CEO, Strand Genomics

Entrepreneurial Ventures:

- Founder **Strand Genomics,** a VC funded bioinformatics company
- Co-Inventor of the **Simputer**

Awards/Recognition: Dewang Mehta Award for Innovation ; Asian Innovation Awards Special Mention, Rabobank Bio-innovator of 2003

Education: PhD, Operations Research, MIT (1982), MS Systems, UCLA (1977), BE (Hons) EEE, BITS (1975)

The simputer has been all over the news in the recent past. How did the idea of the simputer come about and what does the future hold for the simputer?

The Simputer grew from some soul searching that Swami Manohar (IISc), Vinay Deshpande (Encore) and I did in mid 1998 about the nature of IT and its role in development. Manohar christened the concept and we expanded the team by bringing in colleagues from both entities (including another BITSian **Shashank Garg** from Encore).

The Simputer is about to hit the market in two avatars. The IISc spinoff (PicoPeta - listed as one the seven most exciting university spinoffs worldwide by MIT's Technology Review in Sept '01) has designed "Amida" Simputers which will roll out from BEL and "Encore" Simputers which have been out but clearly in small numbers so far. We have about 1500 Simputers in all out there now mostly used for pilot projects and in the hands of some developers. I believe the next 6-12 months will decide whether the device actually flies. The promise of tackling the digital divide and other developmental goals would follow only after the device reaches some sustainable financial existence.

Strand Genomics was the first bio-informatics company started in India. What prompted you and the rest of the team to embark on this venture?

As academics we (Ramesh Hariharan, Swami Manohar, V Vinay and I) were exploring the interface of biology and CS by around 1994. In 1997 we started the Perceptual Computing Lab at IISc. After about two years of consulting, we were convinced that we could build world-class technology and wrote to IISc administration asking for permission to start Strand and PicoPeta. The goal in both companies is to build world class technology products that we can proudly sell globally. After three years of toil, I believe we are poised in both companies with such products.

There must have been many intellectual, technical and logistical challenges to start such a venture ....

The real challenge is to stay completely focused on the ventures. The rest follows.

The metaphor of parenting is particularly apt.

Is Strand Genomics looking to recruit engineers as well as interns from Pilani ? Do you see a bioinformatics boom in India and abroad?

Strand has recruited several BITSians - not sure if we did campus interviews though. Bioinformatics in the US is starting to look attractive as a qualification. The funding crisis in the biotech industry over the last 18 months or so has slowed down the prospects but there is an undeniable case for bioinformatics. Business plans for companies in India that depend on

bioinformatics as an outsourced activity have not been successful. So I do not see a massive need for bioinformaticians in india at this point. According to some estimates we need about 500 trained bioinformaticians for the country this year. This includes companies, CSIR Labs etc.

BITS Pilani offers Pharmacy, Biological Sciences and Computer Science as undergraduate degrees. What would you suggest BITS should do to become better at combining these resources to suit the upcoming trends in bioinformatics?

It is best not to combine these streams. Students can pick electives to cross boundaries. At Strand we have stuck to hiring computer scientists and biologists and made them talk to one another and get past the jargon and other cultural barriers to working together.

What are your thoughts on the BITS connect program and its effort to link the whole of BITS through wireless access ?

Starting off with a very concrete program like the BITS Connect Program is a good way of getting the alumni focused. Wireless access is obviously an appropriate technology focus. I was at MIT last week and it is a joy to be able to work almost anywhere on campus with a laptop, handheld etc. I would love to work with the team and take the Amida Simputer into the campus (we have demonstrated WiFi/ WLL/ CDMA/ GSM/ RF compatibility).

You have studied or worked in such renowned schools as MIT, IISc, Purdue, U Penn and so on. How has the BITSian experience helped you deal with academic and business problems and challenges?

I always claim that the BITS experience was the perfect annealing of a young body, mind and spirit. With a temperature swing of 40-50 degrees Fahrenheit in a day we were certainly physically annealed.;-)

More seriously though, I believe BITS gave us a very good balance of theory and hands on practice. There was healthy respect that existed between the two. The same theme continued at MIT and Purdue and to a lesser extent at IISc. I was well prepared to study matroids (my PhD thesis) and roll up my sleeves and work on CAD/CAM software - some of what I did at Purdue. I owe BITS a great debt of gratitude for this balance.

BITS also gave me a sense of self-actualization without feeling competitive. I believe that the absence of a "JEE" for BITS is actually a blessing as we did not have this notion of a "rank" that we carried as a chip on one's shoulder all through life.

What, in your mind, is the single most important thing we need to do to improve our output, in terms of research?

The key is of course to attract enthusiastic and bright young faculty. For a young professor to get a research track going along with teaching responsibilities, the alumni could give a leg up by providing a startup grant - say about 10 lakhs - will allow the person a chance to hire a postdoc / research assistant and get a small computing environment set up etc. This is routinely done at a place like IISc. Getting organizational help for grant proposal processing is also important. There are a lot of grants given by DST, MCIT, CSIR etc within India and many more internationally that can be a good way of bootstrapping research.

Finally, to create a great undergraduate institution you also need good research - this is the lesson one has learnt from places like MIT and UPenn.

You have been both a researcher and an entrepreneur. What separates research from the spirit of entrepreneurship ? How do we cultivate the entrepreneurial temper in young students?

I think one can be entrepreneurial in research as well. Building a team, getting your funding organized, sticking your neck out a bit by trying ambitious projects - could very well define a research career track as it does an entrepreneurial one.

About cultivating entrepreneurial temper - I once heard Sabeer Bhatia say that Stanford runs a seminar series where they invite alumni / entrepreneurs to come talk to the students. By attending these, he felt quite confident about taking the plunge.

What are your future career plans - at the academic and entrepreneurial level?

The two companies are now poised to move into product sales, marketing and management. I believe it is time for a founder (of my vintage) to step back and allow young professional managers to run the show. It has been a riot for the last three years and I have had a great time.

I will return to academics soon but with new visions now to drive research agendas that are motivated by some experiences with the companies.