

## Bill Thies, '01, MEng '02, PhD '09

When the alternative path is the right path



Bill Thies was a top student. At the end of undergrad, he had a perfect GPA and a world of opportunities. When he graduated from MIT with his PhD in computer science in 2008, Bill was at the top of his field with tenure-track faculty offers from Stanford and Berkeley. He was also interested in a dramatically different alternative — to live in India and develop technology to impact global disparities in health, education and livelihood.

How and why he made this choice is the perfect story that follows.

As an undergraduate, Bill was seeking ways to learn about developing countries. The question was how to find the resources at MIT to help in this search. Coincidentally, he learned about a lecture series run by EECS Prof. Saman Amarasinghe on disseminating health information in remote rural areas. In fact, Michael Dertouzos, then LCS director, spoke at this event about the lab's commitment to targeting technology for the benefit of global health and well-being. Bill notes about

this convergence: "I was stunned, not only by the resonance with my interests, but by a divine coincidence: Saman was already supervising my UROP on an unrelated topic! Herein was born the greatest gift that MIT would offer me: a deep connection with a mentor and role model who championed my personal development for almost a decade."

Things moved quickly after that. Without hesitation (or applying to other graduate schools), Bill enrolled for his PhD at MIT continuing with Prof. Amarasinghe. Soon Bill traveled with him to explore opportunities in Sri Lanka and India where new technology could have an impact on poor communities. He notes: "Saman already knew the ropes — both as a native of Sri Lanka, and as founder of the first Internet Service Provider in the country."

For Bill, everything in India and Sri Lanka was new and unfamiliar. To get his feet wet, Bill helped in the 2002 development of several projects including Time Equals Knowledge (TEK), an email-based search tool for users in low-connectivity environments. In collaboration with LCS affiliate Libby Levison and many students, they deployed this tool and logged usage from diverse individuals — students, farmers, even priests — in remote areas out of Internet reach.

Although he says it was gratifying to have a taste of technology's impact in these surroundings, Bill recalls the development of his thinking: "The more we worked to enable information retrieval in developing regions, the more we realized that the most profound unmet need was not in consuming information, but in producing information. The Internet took off only with the rise of user-generated content — Facebook, YouTube, Twitter — where everyone has a voice and a global audience. For a low-literate farmer in rural India, owning a basic mobile phone and speaking only the local language, producing content may have very different meaning. A number of questions followed. Can we give this population a 'voice'? And will an international audience listen? Can farmers leverage this ability to improve their daily lives?"

With Saman's group, Bill helped build a prototype of an 'audio wiki': an Interactive Voice Response (IVR) system to enable callers to both record and listen to audio content. In audio format, the content became accessible

to low-income populations — without smart phones or Internet connectivity or even literacy.

This prototype was launched in India in 2010 as a real-world deployment called CGNet Swara (<http://cgnetswara.org/>). CGNet Swara provided a new way for rural citizens and social activists to voice news, grievances and cultural stories that otherwise would go unnoticed. Soon, urban activists, government actors and members of the mainstream media were monitoring the system — amending many of the problems that were voiced.

To date, CGNet Swara has released about 4,000 messages and has received about 300,000 calls from listeners. Many reports have had a documented impact on rural communities. For example, reported bribes have been returned; lost wages have been paid; and overdue services have been delivered. Every impact story is detailed on the CGNet Swara website.

Bill's attraction to work in India was also based on his joining a team for the 2007 MIT IDEAS competition and the Yunus Challenge to Alleviate poverty. The focus of the challenge that year was to improve adherence to tuberculosis medications. The group, led by Manish Bhardwaj, SM '01, PhD '09, developed a low-cost electronic pillbox to monitor and improve medication adherence. Winning the challenge and earning recognition in other collegiate business competitions opened up many doors for the team. Bill notes about this milestone: "The most important outcome of our entry was not the technology — which met with difficulties during deployment — but our exposure to the problem domain. As part of the challenge, Manish and I traveled to India and saw the impediments to rural healthcare delivery first hand."

When the time came to graduate, Bill could have taken a faculty position in the United States, building on his dissertation research in programming languages and compilers. The other choice was to take a position at the new Bangalore branch of Microsoft Research (MSR). The interdisciplinary group at MSR India aimed to apply technology to the needs and aspirations of poor communities — a focus that resonated for Bill. And, Kentaro Toyama, the founder of this group was deeply inspiring to him. The decision, though difficult, was obvious.

Moving to India in 2008 allowed Bill and the Yunus Challenge team to bring their ideas to real-world impact. Using his knowledge of TB in India, Bill worked with Operation ASHA to develop a new system using biometrics to track patient visits to health centers. Not only has this system been deployed across 100 clinics and served over 6,000 patients in India, but it is also the focus of a randomized controlled trial by MIT-JPAL. Since Bhardwaj and Thies reported on their non-profit

called Innovators in Health in the 2011 MIT EECS Connector, the group has been awarded a grant from the Gates Foundation, USAID, and IKP to pursue a brand new approach to monitoring medication adherence — a development that was only possible after spending several years observing the context, Bill notes.

Sometimes, undergraduate students approach Bill about work at the intersection of technology and global development. "No matter how good your technical chops are," he suggests, "it's almost impossible to create a successful intervention in a socio-economic context that is radically foreign to your own. Even after living in India for five years (and marrying the girl in the office next to mine!), I still find that my intuition is severely lacking. Nevertheless, he says, "Living in India makes it possible to quickly adapt and evolve. When my intuition is wrong, I can at least *fail fast*—testing ideas with local users and organizations within a few days, as opposed to the weeks or months required from afar."

His recommendations for similarly minded students? Check out classes such as D-Lab for the best possible introduction to the domain, as well as the MIT India program for supporting trips and internships to labs such as his. "If you're considering a visit to Bangalore," Bill adds, "please do get in touch! My email address is [thies@microsoft.com](mailto:thies@microsoft.com)."

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