Yahoo Ramps Up Research
The Web portal's head of research discusses the company's new strategy.
By Kate Greene

For years, Yahoo has lagged behind its main rivals, Google and Microsoft, in offering new products and technologies. Consider that while Microsoft spent $6.18 billion on product development in 2005, Yahoo spent a mere $547 million.

Now a new sense of urgency has taken hold in Yahoo's research offices. Most recently, the company hired Raghu Ramakrishnan, professor at the University of Wisconsin in Madison and an expert in data mining, information retrieval, and privacy. He'll work on the company's social search technology (the best example is Yahoo Answers, which attempts to leverage the knowledge and experience of a community of people who answer questions and provide information). Another new hire, expected to start next month, is economist Michael Schwarz of the University of California in Berkeley, known for his analysis of online advertising models.

Yahoo's new focus on research is in part due to yet another newcomer: Prabhakar Raghavan, head of Yahoo Research, and former chief technology officer at enterprise-search company Verity. He came to Yahoo last year and has been given the task of forming a group of high-level researchers in disciplines ranging from sociology to economics.

Technology Review asked Raghavan about his research projects and plans for Yahoo Research.

Technology Review: You came to Yahoo 13 months ago. How has it changed in that time?

Prabhakar Raghavan: On the mundane side, the company has grown significantly since I got here, [from about 6,000] to a little over 10,000 employees. In a sense, we're settling down to a more organized period and running the company as a much bigger business. It also speaks to why I came here. It felt like at the executive level there was this sense that we cannot keep running this like a startup. There are a few strategic investments we need to make and research is one of them; namely, to essentially create a lab that will invent the future of the Internet.

TR: How has research at Yahoo changed?

PR: We went from being a little boutique shop to something that's much more internationally visible, focusing on five areas that are critical to Yahoo [search and retrieval, data mining and machine learning, user interfaces, utility computing, and microeconomics; see "Yahoo Aims To Be Research Powerhouse"]. It's not just about search or browsing or e-mail. Each of these in itself is only a tool for accomplishing a task. Everybody is trying to run their lives and have fun doing so. They want to be entertained but they also want to get tasks done. So the best thing you can do with the service and tools you provide is to make them ubiquitous and not get in the way.

TR: When you say "not get in the way," it sounds like you want to make the computer interface more natural.

PR: That's totally true. If you think about it, in trying to get any significant activity done today, you probably go to a search engine and conduct a number of searches. So you're switching between doing your job, and going to the search engine and coming back and integrating it. That shouldn't happen. If you want a vacation, you should be able to tell us you want a vacation and we figure it out. When we talk about search research, it's not just about how to improve ranking, we're thinking about fundamentally new ways [to find and present information].

TR: Could you give me an example of one of your research projects?

PR: We have something of a success in Yahoo Answers [where people in an online community ask and answer specific questions], which is ramping up faster that you can imagine. As a community like that takes off, you want its value to grow faster than the membership. To get that done, you need to find a better way of routing answers to people with questions. Quite likely, after a while, the question that you've asked has been answered by someone already, except in a different guise. How do we play this matchmaker role? How do we create a reputation system that rewards good answers and mitigates poor quality? How do we create an incentive structure for people to exhibit the right kind of behavior for social welfare?

TR: Good questions, what are the answers?

PR: It touches upon aspects of sociology, computer systems, and microeconomics. We have these areas coming together so there is a confluence of multiple technical disciplines.

As with any systematic research methodology, what you do is break it down into tangible questions. A ranking system for answers is very different from ranking for simple Web search. What does a reputation look like? A reputation platform you're probably familiar with is eBay's reputation platform for sellers, but this is different because you don't have people selling things. How do you get people incentivized to do the right thing?

So you break these things down into concrete questions so that a search expert or systems expert or an economist would understand them, and then you send out people to go and think hard about these things. It's not just solving the problem *du jour*. It's actually about creating new sciences. And in the process, we see value in taking back to the scientific community new problems. The new solutions that we've created hopefully will become seminal kinds of scientific papers that others will build on.

TR: What do you think the future of computing and the Internet will look like?

PR: Will the browser be the dominant medium, the dominant window into the Internet? No. You'll see rapid updates in other interfaces, especially in emerging markets [including China and South Korea] where a lot of people use mobile devices instead of computers. But if you think beyond that, from a Yahoo standpoint, the computer-human interaction isn't really what we're about. We don't care about pixels on the screen. What we care about is how you interact with other humans. A computer and a mobile device are just mediums. To our children, these are just appliances that are just part of the background. That's where we need to be.