# Professor-Turned-CEO Pitches New Wireless Data Transfer Technology

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When Sujit Dey decided to take a full leave to start a new wireless company, he did so reluctantly. The Electrical and Computer Engineering professor didn't want to stop teaching, but otherwise, the technology might never see the light of day. "The companies that expressed interest were technology users, not technology developers," explains Dey. "After a lot of soul searching, I decided to take the risk."

Late last year, he launched Ortiva Wireless, which now employs ten people, including several Jacobs School alumni. The offices are strategically located close to campus, where Dey visits his UCSD lab several times a week to touch base with his graduate students, and perform important departmental tasks such as faculty recruitment.

The core software solutions developed in Dey's lab - some of which will now be commercialized by Ortiva Wireless - involve dynamically adapting data as a function of the type of network, device, and application being used. "Our pitch to wireless carriers is that our products can increase wireless data capacity and revenues by a very healthy margin, while reducing capital and operating expenditures." claims Dey. "We also provide significant advantages to content providers and aggregators - allowing them to deliver rich content across any network and device, without the need to develop and maintain network and device-specific content versions. All the above while significantly improving data quality - 50 percent better video, and five to ten times faster web browsing."

So far, the process of technology transfer could be a model for other university researchers. A year ago, Dey won a grant of $50,000 from the Jacobs School's von Liebig Center for Entrepreneurism and Technology Advancement to build a first proof-of-concept for software that dynamically shapes data in applications as a function of network and device conditions and constraints. Dey admits getting "a lot of help from our business advisor at the center, Tim Rueth, and I learned a lot that is now proving useful in the new company."

Dey also got support from Alan Paau, David Gibbons and others in UCSD's Technology Transfer and Intellectual Property Services (TechTIPS) office. "The collaboration between TechTIPS and the von Liebig Center really helped to facilitate this project," said Dr. Paau, Assistant Vice Chancellor. "The teamwork of the two service units allowed UCSD to make available to Professor Dey a full plate of services - from the protection and licensing of intellectual property to market validation and business formation advice."

The deal to license the technology from UC - which owns all technology coming out of university labs - was completed in near-record time. "We made the decision in September to start a new company and by December we had an agreement in place with UC," explains Dey, who was a researcher at NEC before joining the UCSD faculty in 1997. "There was not a single instance of heartache on either side." UC received an upfront license fee, and will get a portion of all future revenues generated by Ortiva Wireless. Startup financing for the company came from Artiman Ventures and Avalon Ventures.

The focus of Dey's research for the past four years has been what he dubs a "gold mine for researchers": wireless heterogeneity. Different access technologies co-exist (e.g., Wi-Fi versus 3G cellular), as do different devices (laptops, PDAs) and applications (web, audio, video). "Data rates, bandwidth and noise will always be fundamental limitations for any wireless access technology," he adds. "I designed my research to be relatively

low risk for potentially high impact. Rather than looking for the next killer application, there is value in enabling applications that work across many technologies, and networks that work with any device."

Dey acknowledges substantial support for his research from the UCSD division of the California Institute for Telecommunications and Information Technology (Calit2) and its industry partners. "Finding solutions that will create more order in a world of wireless heterogeneity is an important research challenge for the institute," says Ramesh Rao, Calit2's division director at UCSD and a professor of Electrical and Computer Engineering. "This is a wonderful example of technology benefiting society, thanks in part to research support from our industry partners."

"Normally a technology company has one to two years to develop its products, but our potential customers among carriers and content aggregators could use this technology now," continues Dey. "We do have prototypes that have been demonstrated, but it's a big jump to go to customer trials and deployments with full-fledged products."

Dey says the grant from the von Liebig Center galvanized his team. "We had a timeline and a set of tasks that drove the advanced prototyping much more systematically than is typical in a purely academic research project," says Dey. "The ultimate goal of von Liebig funding is to push technology closer to commercialization, and that kept us on our toes." The von Liebig funding allowed Dey to give part-time research jobs to several undergraduate students, including one who has subsequently graduated and joined Ortiva Wireless full-time.

The sales pitch for Ortiva Wireless comes at a time of growing confidence in the future of the wireless data market, as Dey well knows. He chaired the scientific advisory board of San Diego-based Zyray Wireless, which faltered initially with uncertainties about 3G network deployment. (It has since then done very well, and been acquired by Broadcom.) But carriers are once again infusing a lot of cash into wireless data network infrastructure and operations. Ortiva Wireless is in the process of raising more venture capital, and Dey is optimistic. "It has been clear since last summer that the market for these technologies is coming back," says the company's president, founder and CEO.

Going forward, Dey says he will begin recruiting a permanent CEO for his company in a few months - in plenty of time to allow him to return full-time to teaching and research at UCSD in 2006.

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