



DHRUV SUD
TECHNOLOGY SPECIALIST

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AREAS OF FOCUS

Chemical

Life Sciences

Mechanical

Electronics/Computer Systems/Software

Business Methods/Ecommerce

Dr. Sud's practice includes all areas of intellectual property law including patent preparation and prosecution, invalidity and infringement opinions and assists in counseling related to patentability and freedom to operate. His work focuses on a range of diverse technologies.

Dr. Sud received his PhD and MSE in Biomedical Engineering from the University of Michigan in 2008. His doctoral work focused on developing experimental and computational techniques for advanced digital imaging microscopy, and oxygen sensing in living systems via fluorescence lifetime imaging in particular. His thesis work drew from collaboration with varied UM research groups in Biomedical Engineering, Chemical Engineering, Macromolecular Sciences, Applied Physics, Cancer Center, and the Medical School. He also spent time researching in the area of Computational Pathology, with a focus on developing temporal models of gastric acid secretion and Tuberculosis infection. Other than the published articles, his work has been presented at several conferences, including BMES 2006 and the NIH Imaging Workshop 2007. His professional involvement included positions with the Biomedical Engineering Society, Society of Pharmaceutical Engineers, and the University of Michigan Engineering Council. In 2007, he was elected to the post of Vice-President of the Graduate Student Government, which represents the interests of the 8000+ graduate students at the University of Michigan.

He received a Bachelor of Engineering (Computer Science & Engineering) from Delhi University in 2002, where he graduated First Class. He undertook two internships with Microsoft India R&D, first as an Intern-Software Development Engineer and then as an Intern-Program Manager. In his senior year, he was appointed to the post of Vice President of the IEEE Student Chapter.

EDUCATION

Delhi University, India (B.E., Computer Engineering, 2002)

University of Michigan (M.S.E., Biomedical Engineering, 2004)

University of Michigan (Ph.D., Biomedical Engineering, 2008)

PUBLISHED ARTICLES

Dhruv Sud and Mary-Ann Mycek "Calibration and Validation of an Optical Sensor for Intracellular Oxygen Measurements". J. Biomed. Opt. L. 2009 (accepted for publication, in press).

Dhruv Sud and Mary-Ann Mycek, "Image Restoration for Fluorescence Lifetime Imaging Microscopy (FLIM)," Opt. Express 16, 19192-19200 (2008).

"Fluorescence Lifetime Imaging Microscopy" (Book Chapter) CW Chang, D Sud, MA Mycek - Digital Microscopy, 3rd Edition, 2007.

"Quantitative measurement and control of oxygen levels in microfluidic poly(dimethylsiloxane) bioreactors during cell culture" Geeta Mehta, Khamir Mehta, Dhruv Sud, Jonathan W. Song, Tommaso Bersano-Begey, Nobuyuki Futai, Yun Seok Heo, Mary-Ann Mycek, Jennifer J. Linderman and Shuichi Takayama. Biomed Microdevices (2007) 9:123-134.

Marino S, Sud D, Plessner H, Lin PL, Chan J, et al. 2007 "Differences in Reactivation of Tuberculosis Induced from Anti-TNF Treatments Are Based on Bioavailability in Granulomatous Tissue" PLoS Comput Biol 3 (10).

Dhruv Sud, Wei Zhong, David G. Beer, and Mary-Ann Mycek, "Time-resolved optical imaging provides a molecular snapshot of altered metabolic function in living human cancer cell models," Opt. Express 14, 4412-4426 (2006).

PUBLISHED ARTICLES CONTINUED

“Optical imaging in microfluidic bioreactors enables oxygen monitoring for continuous cell culture” Dhruv Sud, Geeta Mehta, Khamir Mehta, Jennifer Linderman, Shuichi Takayama, and Mary-Ann Mycek, J. Biomed. Opt. 11, 050504 (2006).

“Contribution of CD8+ T Cells to Control of Mycobacterium tuberculosis Infection” Dhruv Sud, Carolyn Bigbee, JoAnne L. Flynn and Denise E. Kirschner. The Journal of Immunology, 2006, 176: 4296-4314.

D. Sud, W. Zhong, D. Beer, and M. Mycek, “Fluorescence Lifetime Imaging Microscopy Detects Altered Metabolic Function in Living Human Cancer Cell Models,” in Biomedical Optics, Technical Digest (CD) (Optical Society of America, 2006), paper TuC6.

D. Sud, G. Mehta, K. Mehta, J. Linderman, S. Takayama, and M. Mycek, “Fluorescence Lifetime Imaging Microscopy (FLIM) Measures Oxygen Gradients in Microfluidic Bioreactors,” in Biomedical Optics, Technical Digest (CD) (Optical Society of America, 2006), paper TuI52.

“Sensing cellular function and molecular activity in vivo using fluorescence lifetime imaging microscopy (FLIM)” Wei Zhong, Dhruv Sud, Mei Wu, Karl A. Merrick, Sofia D. Merajver, David G. Beer, and Mary-Ann Mycek, Proc. SPIE 5864, 586407 (2005).

“Predicting Efficacy of Proton Pump Inhibitors in Regulating Gastric Acid Secretion” (Invited Paper) Dhruv Sud, Ian M. P. Joseph and Denise Kirschner. Journal Of Biological Systems, Vol. 12, No. 1 (2004) 1-34.

SPEAKING ENGAGEMENTS

Instructor - Analytical and Quantitative Light Microscopy Workshop, May 2007 at the Marine Biological Laboratories, Woods Hole MA

ACTIVITIES

Member of:

IEEE - Institute of Electrical and Electronics Engineers

SPIE - Society of Photo-Optical Instrumentation Engineers

OSA - Optical Society of America