

**THURSDAY
OCTOBER 19, 2006**

**Scaife Hall Auditorium
Room 125**

**4:30 p.m.
Refreshments—4:00 p.m.**



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Dr. Nalini K. Ratha is a Research Staff Member at IBM Thomas J. Watson Research Center, Hawthorne where he leads the biometrics research efforts. He received his B. Tech. in Electrical Engineering from Indian Institute of Technology, Kanpur, M. Tech. in Computer Science and Engineering also from Indian Institute of Technology, Kanpur and Ph. D. in Computer Science from Michigan State University, East Lansing. He has published more than 50 journal and conference papers in biometrics related topics. He is a co-author of a popular book on biometrics “Guide to Biometrics” and also co-editor of “Automatic Fingerprint Recognition Systems” both published by Springer. He has been awarded seven patents. He is the co-editor for an upcoming Special Issue on Biometrics – IEEE Trans. on SMC – Part B and IEEE Trans. on Information Forensics and Security. He has been associated with several biometrics conferences: co-chair of the ICPR 2006 Associated Theme: Biometrics, co-chair of IEEE Workshop on Biometrics (collocated with CVPR 2006), co-chair AVBPA 2005, and IEEE BTAS 2007. He is currently a Senior Member of IEEE and member of ACM. At the IBM Industry Solution Lab, he is a frequent speaker addressing biometrics research and system design challenges of IBM customers. He has received several awards at IBM.

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Large Scale Biometrics Identification: Issues and Challenges

As more and more civil applications require reliable and accurate citizen identification, lawmakers rely on biometrics as a useful tool in building identification services. In this talk, we briefly review algorithms used in fingerprint identification in particular. Contrary to the common belief that fingerprint identification is a solved problem, we will show that there are several research issues in building a large scale fingerprint identification system. The impact of the biometrics system errors on the workload and efficacy of the overall system will be demonstrated. The challenges for large-scale biometrics identification are significant both in terms of improving accuracy and response time. The current performance of the identification algorithms need to be significantly improved to successfully handle millions of persons in the biometrics database matching thousands of transactions per day. Current large scale biometrics identification techniques will require a fresh approach in designing systems that can handle such work loads and very large populations. An often ignored important aspect of large scale biometrics system deals with the issue of citizen privacy. The uniqueness of biometrics can be a liability in protecting citizen privacy. IBM Research has proposed “cancelable biometrics” to the industry to enhance privacy in biometrics systems. The design principles behind cancelable biometrics will be presented along with recent results.