

# SANJAY RANKA, Ph.D.

Computer Science Expert Witness | Distinguished Professor, University of Florida | Former CTO, Paramark |  
IEEE & AAAS Fellow

sanjayranka@gmail.com | 352-514-4213 | www.sanjayranka.com | Gainesville, FL (available nationwide)

---

## PROFESSIONAL PROFILE

Expert witness in patent litigation and complex technology disputes involving distributed systems, cloud infrastructure, machine learning, AI and computer vision systems, large-scale data platforms, GPU-accelerated computing, and high-performance software architectures. Particularly well suited for matters where real-world system behavior, performance constraints, or implementation details must be compared against patent claims, technical specifications, source code, or opposing expert opinions. Combines decades of academic research with hands-on industry experience building and operating large-scale, fault-tolerant production systems. Distinguished Professor at the University of Florida; PI or co-PI on \$25M+ in federally funded research over the past decade from NIH, NSF, DOE, AFOSR, and USDOT. Former CTO of Paramark, where I designed and deployed PILOT, a real-time, fault-tolerant ML decisioning service serving 10M+ personalized decisions per day at 99.99% uptime; lead inventor on the underlying patents, several now held by Google. IEEE Fellow, AAAS Fellow, AAIA Fellow; recipient of the 2020 IEEE Cloud Computing Research Impact Award. Services include early case assessment, claim-construction and Markman support, infringement and invalidity analysis, prior-art investigation, source-code review, IPR/PTAB expert reports, rebuttal analysis, depositions, and federal jury trial testimony.

## AREAS OF EXPERTISE

<ul style="list-style-type: none"><li>Distributed systems and cloud computing</li></ul>	<ul style="list-style-type: none"><li>Large-scale software platforms and data pipelines</li></ul>
<ul style="list-style-type: none"><li>Machine learning, AI, and computer vision systems</li></ul>	<ul style="list-style-type: none"><li>Databases, data warehousing, and data-intensive systems</li></ul>
<ul style="list-style-type: none"><li>Personalization, recommendation, and ad-tech platforms</li></ul>	<ul style="list-style-type: none"><li>Real-time data ingestion, analytics, and event-driven systems</li></ul>
<ul style="list-style-type: none"><li>GPU-accelerated, parallel, and high-performance computing</li></ul>	<ul style="list-style-type: none"><li>System performance, scalability, latency, and fault tolerance</li></ul>
<ul style="list-style-type: none"><li>Source-code review and software architecture analysis</li></ul>	<ul style="list-style-type: none"><li>Healthcare informatics, digital-health, and intelligent-transportation platforms</li></ul>

---

## EDUCATION

**Ph.D., Computer Science:** University of Minnesota, 1988

**M.S., Computer Science:** University of Minnesota, 1986

**B.Tech., Computer Science:** Indian Institute of Technology, Kanpur, 1985

---

## PROFESSIONAL EXPERIENCE

**Distinguished Professor,** University of Florida, Department of CISE 2002–present

Research and teaching in machine learning, applied algorithms, HPC, and data science. Lead computer scientist on multiple NIH, NSF, DOE, and FDOT projects in healthcare informatics, intelligent transportation, and scientific data analytics. Supervised 50+ doctoral graduates placed at Google, Amazon, Meta, Microsoft, NVIDIA, and academia.

**Chief Technology Officer / Chief Scientist,** Paramark, Inc., Sunnyvale, CA 1999–2002

Designed and deployed PILOT — a real-time, parallel, fault-tolerant optimization service that used active machine learning and data mining to deliver personalized advertising decisions based on consumer profiles and contextual signals. Served 10M+ optimized decisions per day at 99.99% uptime. Lead inventor on the underlying patents; several were later acquired by Google.

## RESEARCH AND INDUSTRY EXPERIENCE

- **Personalization, ad-tech, and real-time ML decisioning at scale:** As CTO of Paramark, designed and deployed PILOT — a real-time, parallel, fault-tolerant ML optimization service serving 10M+ personalized decisions per day at 99.99% uptime. Lead inventor on the underlying personalization patents; several are now held by Google.
- **Healthcare informatics and digital-health platforms:** PI on ROAMM (NIH, ~\$2M), a smartwatch platform integrating real-time biometric and patient-reported data with AWS-based analytics, individualized assessments, and bidirectional alerts. Co-PI on an active NIH multi-modal AI project for chronic kidney disease. Co-author, *Data-Driven Approaches for Health Care High Utilizers* (CRC Press, 2019).
- **Intelligent transportation, computer vision, and edge/cloud AI:** PI on NSF Smart Cities and FDOT projects building multi-sensor (video, LiDAR, ground-sensor) real-time ML inference pipelines, backend services, APIs, event-driven processing, and automated alerting deployed in Gainesville, Orlando, Broward, and Seminole. Co-author of two CRC Press books on ML for traffic intersections and integrated corridor management.
- **Scientific computing, HPC, and large-scale data systems:** PI on the DOE RAPIDS2 SciDAC Institute, leading large-scale ML and data-systems work with Oak Ridge National Laboratory. Prior co-developer of the Fortran 90D compiler, an early high-performance compiler for distributed-memory parallel machines. Long-running work in databases, parallel algorithms, GPU/CUDA computing, and scientific data systems.
- **Scholarly impact:** 350+ peer-reviewed publications, 18,330+ citations, h-index 65. Seven authored or co-authored books with CRC Press, MIT Press, Wiley–IEEE, and Springer. Supervised 50+ doctoral graduates.

## SELECTED HONORS

IEEE Fellow (2002); AAAS Fellow (2006); AAIA Fellow (2022); Distinguished Alumnus Award, IIT Kanpur (2022); IEEE Cloud Computing Research Impact Award (2020); UF Foundation Research Professorship (2018–2021, 2023–2026); UF College of Engineering Doctoral Dissertation Mentorship Award (2024).

## LITIGATION & EXPERT WITNESS EXPERIENCE

**Source-code review | Rebuttal analysis | 15+ expert reports and declarations | 4 deposition appearances (including related proceedings) | Federal jury trial testimony | USPTO IPR proceedings | Testimony excluded: None**

Retained as a technical expert in patent litigation and IPR proceedings involving machine learning, ad-tech and personalization, distributed and cloud computing, computer vision, and large-scale data systems. Engagements span federal district court (E.D.N.Y., M.D. Fla.), the Patent Trial and Appeal Board (PTAB), and USPTO reexamination, on both plaintiff and defense sides. Work product includes early case assessment, claim-construction and Markman support, infringement and invalidity analysis, prior-art investigation, source-code review, declarations, expert reports, rebuttal analysis, depositions, and federal jury trial testimony.

## Representative Engagements

Counsel	Matter	Forum	Work Product	Year
Volpe Koenig	Tesla v. Intellectual Ventures	IPR2025-00341 (PTAB)	Expert Report	2025
Banner Witcoff	FreeWheel Media v. AlmondNet	IPR2024-00416 (PTAB)	Expert Report & Deposition	2024
Banner Witcoff	FreeWheel Media v. AlmondNet	IPR2024-00413 (PTAB)	Expert Report & Deposition	2024
Flaster Greenberg	Hayden AI v. SafeFleet Holdings	23-cv-03471 (E.D.N.Y.)	Expert Report & Deposition	2023
Iaconis Law	Google LLC v. MindbaseHQ, LLC	IPR2021-01251 (PTAB)	Expert Report & Deposition	2021
Iaconis Law	Google LLC v. MindbaseHQ, LLC	IPR2021-01252 (PTAB)	Expert Report & Deposition	2021
Sterne Kessler	Patent Reexamination	USPTO	Expert Report & USPTO Appearance	2008
Allen Dyer	800 Adept v. Murex Securities	6:02-cv-01354 (M.D. Fla.)	Expert Report, Deposition & Jury Trial	2006

*Additional confidential consulting engagements available upon request, as permitted.*