

DR. KUNTAL DEY

Technology R&D Leader | Former IBM Master Inventor | Adjunct Professor

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PROFESSIONAL PROFILE

Pioneering Technology R&D Leader, former IBM Master Inventor, and Adjunct Professor with continuous track record of end-to-end expertise spanning advanced research, product incubation and large-scale deployment across AI, NLP and Distributed Systems, since January 2003. Proven track record in bridging blue-sky technical innovation with high-value enterprise impact and strategic business transformation.

- **Prolific IP & Academic Record:** Holder of 220+ granted US utility patents (among the top-10 most prolific inventors in India) and co-author of 85+ research papers in premier venues (ACL, EMNLP, AAAI, WWW and others).
- **Key Industry Innovations:** Pioneered the earliest QR-code payment system prototype (2010–2011); IBM Master Inventor (<1% global workforce); delivered 700% throughput gains for federated client onboarding process on the core messaging infrastructure at Microsoft.
- **Current Leadership Focus:** Guiding R&D in Agentic AI Infrastructure, multi-agent orchestration, dynamic GenAI control planes (evaluation, governance/guardrails, fairness/ethics & observability), edge/privacy-preserving architectures, and sustainable AI operations across global accounts as Senior Principal (Senior Manager) at Accenture Labs.

CORE COMPETENCIES & LEADERSHIP CAPABILITIES

- **AI, Agentic & Distributed/Edge Systems Architecture:** Optimized Agentic Workflows & Multi-Agent Orchestration, GenAI Control Planes (Evaluation, Guardrails & Observability), Distributed AI, Edge AI, NLP, RAG, Graph & Social Network Analytics, High Availability & Distributed Systems.
- **Strategic R&D & Business Impact:** Product Incubation & Seeding, IP Strategy & Patent Portfolio Management, National AI Standardization (BIS LITD 30 / SC-42), Innovation Guidance for \$100M+ Accounts, Green & Sustainable AI, Privacy-Preserving Computing.
- **Organizational Leadership & Academic Governance:** Multi-Team Engineering Leadership and R&D Mentorship, Strategic Roadmap Alignment, Academia-Industry Collaboration, Area Chair (ACL Rolling Reviews – At Present), Program Committee Member (ACL, NAACL, EMNLP, COLING, EACL, LREC, ICPR, AAAI, IJCAI, ECIR, IJCNLP etc. – All Formerly).

PROFESSIONAL EXPERIENCE

Accenture Labs – Technology R&D Senior Principal (Senior Manager)

June 2020 – Present | Bangalore, India

- **R&D Leadership & Organizational Growth:** Built and led a high-impact R&D team of 8 researchers/engineers in Software Engineering R&D, establishing strategic roadmaps, team charters, and high-value technical differentiators across agentic AI and systems innovation.
- **Agentic Infrastructure & Operational Telemetry:** Spearheaded research enabling autonomous planning, execution, and human-in-the-loop controls across complex infrastructure lifecycles. Developed architectures fusing real-time operational telemetry with deterministic governance, non-determinism, human agency and edge/cloud safety. Guided innovation delivery in ATCI Infra at Accenture, directly influencing delivery for multiple \$100M+ clients.
- **Agentic Systems & GenAI Control Planes:** Pioneered agentic chain auto-generation of software PoCs from natural language requirements. Developed an optimization control plane for LLM inferencing, balancing probabilistic model capability with deterministic software requirements, thereby optimizing quality, latency, cost, carbon expenditure and safety guardrails.

- **Privacy & Sustainability:** Incubated privacy-preserving software architectures (edge, cloud, secure enclaves) and created container lifecycle technologies for green, sustainable AI.

Indian Institute of Information Technology (IIIT), Guwahati – Adjunct Faculty (Rank: Professor)

January 2021 – Present | Honorary Role

- **Academic Leadership:** Teach Natural Language Processing (NLP) courses and advise 3 PhD research scholars in advanced NLP and graph analytics.

IBM Research India – Senior Software Engineer & IBM Master Inventor

May 2007 – June 2020 | New Delhi / Bangalore, India

- **Mobile Payment Pioneer:** Conceived (invented and ideated), built, and incubated the industry's first working prototype for QR-code-based mobile payments in 2010 (published 2013), laying the technical foundation for modern digital payment ecosystems – one that has radically transformed India's payment ecosystem.
- **Multidisciplinary R&D:** Led cross-functional global research across mobile analytics, eye-gaze tracking, social network information diffusion, and computer vision.
- **Master Inventor Honor:** Awarded the prestigious IBM Master Inventor title (<1% of IBM global workforce) for sustained high-impact invention and IP portfolio leadership.

EARLIER ENGINEERING & RESEARCH ROLES

- **Microsoft (India Dev Center) | Software Design Engineer** (2005 – 2007): Redesigned core system architecture for MSN Live Communication Server, delivering a 700% throughput performance boost and driving substantial revenue impact.
- **VERITAS Software / Symantec | Software Engineer – New Products Initiative** (2003 – 2005): Selected as top-ranked IIT Bombay campus recruit for an elite innovation team. Defined product roadmaps and high-availability prototypes for VERITAS Cluster Server.
- **TCS Research Lab (IIT Bombay) | Research Associate** (2003): Researched natural language processing and machine translation applications under Prof. Pushpak Bhattacharyya.

EDUCATION

- **Ph.D. in Information Technology** – IIT Delhi (2019)
Thesis: Modeling Correlation between Social Connections, Topics and Information Diffusion on Social Media. Focus: NLP & Graph Analytics.
- **M.Tech in Computer Science & Engineering** – IIT Bombay (2003) | Rank 5 Overall (Topper after 1st semester)
Focus: Natural Language Processing & Machine Translation.
- **B.E. in Computer Science & Engineering** – Jadavpur University, Kolkata (2001)
- **M.S. in Psychology (Counseling & Therapy)** – IBMS Chittoor (2004) | Specialization: Industrial Psychology (Remote Course)

PATENTS, PUBLICATIONS & PROFESSIONAL SERVICE

- **220+ Granted US Utility Patents:** Recognized among the top-10 most prolific inventors ever in India.
- **85+ Top-Tier Peer-Reviewed Publications:** Co-authored papers across premier AI/NLP conferences (ACL, AAAI, ICPR, ASE, WWW, IUI).
- **Selected Young Researcher, Heidelberg Laureate Forum (2019):** Selected as one of 100 young Computer Scientists globally to participate in cross-generational dialogue with Nobel Laureates, ACM Turing Award Laureates and Fields/Abel Medalists in Heidelberg, Germany.
- **National AI Standardization Leadership (2018–2020):** Incubated, defined, and served as the inaugural lead for the India-wide Applied AI track under BIS LITD 30 / SC-42 (India's national AI standardization body, chaired by Prof. Pushpak Bhattacharyya), shaping foundational applied AI frameworks.

- **Global Academic Service:** Area Chair for ACL Rolling Reviews (ARR); Program Committee member for ACL, EMNLP, NAACL, AAAI, IJCAI, ICPR and other leading conferences. Former visiting faculty at Symbiosis Pune, SAU (South Asian University) Delhi, and EMPI Delhi.