

Prabhat Kumar Tiwari

Steel Automation and Systems Integration Leader

India | prabhat@goatai.io | +91 92040 58820

Professional Profile

Engineering leader with 33+ years in steel-plant automation and systems integration across Tata Steel and RINL. Former Head of Tata Steel's System Integration Group, with experience spanning controls, modernization, commissioning and production ramp-up. Combines steel-process knowledge with industrial data and computer vision to solve plant operating problems. Co-author of published research on deployed neural-network quality prediction and cold-rolling chatter detection.

Core Expertise

Industrial automation and systems integration • PLC and SCADA • Level 1 and Level 2 systems • Process control and commissioning • Brownfield modernization • Instrumentation • Computer vision • Process quality monitoring • Plant safety applications

Professional Experience

Tata Steel | 1996–December 2024

Head, System Integration Group | Jamshedpur, India

- Led automation and systems integration work across steelmaking, ironmaking, rolling, utilities and material handling in an integrated steel plant.
- Worked on control-system modernization, PLC/SCADA integration, instrumentation and legacy platforms; contributed to commissioning, production ramp-up and Level 1/Level 2 system restoration.
- Designed, developed and implemented a vision-based Ladle Vigilance System to support no-man-zone safety around ladle movement.
- Led development of COVID-era computer-vision monitoring for PPE use, restricted-zone entry and fire-related safety conditions; recognized through Tata Steel Innovista.

Rashtriya Ispat Nigam Limited | 1991–1996

Electrical Engineer | Visakhapatnam, India

- Worked on industrial electrical and automation systems during steel-plant production ramp-up, including equipment, commissioning and operations.

Steel Process and Delivery Experience

Process exposure includes blast furnaces, BOF steelmaking, ladle furnaces, continuous and thin-slab casting, hot and cold rolling, pellet and sinter operations, gas and utility systems, cranes, yards and material handling.

- Translates plant operating problems into requirements for controls, software and AI teams, drawing on system architecture, integration, commissioning and troubleshooting experience.
- Experienced in brownfield delivery, balancing production continuity, legacy equipment, site readiness, safety and maintainability.

Selected Applied AI and Research

Online prediction of galvanised-coil mechanical properties

- Co-authored research using data from 25,000 coils to develop neural-network models for yield strength and ultimate tensile strength from material chemistry and galvanising process conditions.
- The published system was implemented on Tata Steel's Level-II automation server with operator displays and online quality alerts. For 1,180 coils, online yield-strength predictions had a reported mean absolute error of 6.4 MPa against laboratory values.

Lalam S, Tiwari PK, Sahoo S, Dalal AK. Online prediction and monitoring of mechanical properties of industrial galvanised steel coils using neural networks. *Ironmaking & Steelmaking*. 2019;46(1):89–96. DOI: 10.1080/03019233.2017.1342424

Chatter detection in cold rolling

- Co-authored research combining mill vibration measurements, signal analysis and principal component analysis (PCA) to identify chatter in cold-rolled coils.
- The study evaluated 14 chatter and 43 non-chatter coils of similar grades and sections using 10 kHz vibration data. It compared frequency-spectrum and statistical-feature methods and described integration with a central condition-monitoring system and web interface.

Usmani NI, Kumar S, Velisatti S, Tiwari PK, Mishra SK, Patnaik US. Chatter detection using principal component analysis in cold rolling mill. *Diagnostyka*. 2018;19(1):73–81. DOI: 10.29354/diag/81692

Patent and Recognition

- Co-inventor, Indian Patent 578214: “Method, device and system for monitoring alignment of uncoupled wagons in real-time.” Granted 14 January 2026; patentee: Tata Steel Limited.
- Tata Steel Innovista recognition for the COVID-era computer-vision safety response.

Education

Master of Business Administration (MBA)

XLRI Jamshedpur | 2014–2017

Bachelor of Engineering in Electrical Engineering

National Institute of Technology (NIT), Jamshedpur | 1987–1991