Contact

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www.linkedin.com/in/t-ghosh (LinkedIn)

Top Skills

JavaScript

PHP

Data Warehouse Architecture

Languages

Hindi (Native or Bilingual)

German (Elementary)

English (Full Professional)

Bengali (Native or Bilingual)

Telugu (Native or Bilingual)

Certifications

A Hands-on Introduction to Engineering Simulations

SQL

Introduction to programming with MATLAB

HTML Essential Training

Introduction to CSS

Publications

Towards A Strategy for Developing a Project Partner Recommendation System for University Course Projects

Analysis of Lithium ion battery cooling system for electric vehicle using a phase -change material and heat pipe

Tathagata Ghosh

Data Engineer | Knowledge Graphs, ETL, Python, SQL, Cloud & Analytics Platforms

Magdeburg, Saxony-Anhalt, Germany

Summary

I'm a Data Engineer at heart, focused on building reliable, scalable, and well-governed data systems that turn complex, unstructured information into usable products.

My core background is in data engineering, cloud platforms, and metadata-driven architectures — working with Python, SQL, distributed processing, and modern storage layers. At HZDR, I built a FAIR-aligned research data platform ("DRACO DataMaster") using ontologies, knowledge graphs, MongoDB, and object storage (MinIO) to structure and serve large-scale scientific data for high-energy physics workflows.

Alongside this, I explore adjacent areas that strengthen my data engineering skill set. Currently, I'm working as a freelance engineer for a stealth SaaS startup, contributing to an ERP-style platform where data modeling, visualization, workflow automation, and DevOps converge. The project lets me apply data engineering principles beyond pipelines — including system design, analytics dashboards, API-driven data services, and containerized deployments with Docker.

What drives me is building end-to-end data products: from ingestion and modeling, to governance, visualization, and operational reliability.

My focus areas include:
- Data Engineering & ETL
- Python & SQL
- Metadata systems & Knowledge Graphs
- Cloud & DevOps (Docker, CI/CD, GCP)
- Analytics & Visualization

I'm seeking opportunities in the data and cloud engineering domain where I can keep growing while contributing to impactful, production-grade platforms.

Open to Work
Roles: Data Engineer / Cloud Data Engineer / Analytics Engineer
Location: Germany / EU (Hybrid or Remote)
Work authorization available

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Experience

OWIPL
Full-Stack Developer (Freelance)
October 2024 - Present (1 year 6 months)
Visakhapatnam, Andhra Pradesh, India

Architecting and developing a multi-tenant SaaS platform for workforce and operations management in a regulated domain. The product is currently in advanced construction (~70%) and focuses on secure onboarding, document intelligence, role-based workflows, and analytics for multiple stakeholder groups.

Key Contributions

• Designed a scalable microservices architecture supporting authentication, document intelligence, job workflows, and role-based portals using React, Node.js, FastAPI, Flask, MongoDB, and Docker.

• Built an AI-assisted document processing pipeline using PaddleOCR and local LLM inference, enabling automatic classification and structured data extraction from multiple document types.

• Implemented secure JWT authentication with refresh tokens, RBAC, rate-limiting, audit logging, and user-isolated storage.

• Developed multi-role dashboards (user, organization, admin) with analytics, workflow management, scheduling, and lifecycle tracking using Ant Design, Mantine UI, Recharts, and Framer Motion.

• Engineered a modular job and application workflow system with multi-state pipelines and real-time status updates.

• Created automated profile-to-PDF generation and structured data export services using jsPDF and backend APIs.

• Implemented secure file handling with UUID naming, MIME validation, and isolated directories for compliance-ready document storage.

• Orchestrated 4+ services with Docker Compose, health-check monitoring, and automated startup scripts.

• Designed clean frontend architecture with reusable components, protected routes, async middleware, and logging using Winston.

Helmholtz-Zentrum Dresden-Rossendorf (HZDR)
Data Science and Visualization Student Assistant
April 2024 - March 2025 (1 year)
Dresden, Saxony, Germany

At HZDR, I contributed to the DRACO DataMaster project, which aims to improve data management for high-energy laser particle acceleration experiments. My primary contributions included:

• Developing ETL Pipelines: Engineered a scalable metadata-driven ETL process that transforms raw scientific experiment data into structured formats for analysis and visualization.
• Data Warehousing & Integration: Designed an efficient data warehouse architecture to support the storage and retrieval of heterogeneous experimental datasets in MongoDB and MinIO.
• Semantic Data Enrichment: Leveraged ontologies and knowledge graphs to establish relationships between datasets, enabling FAIR (Findable, Accessible, Interoperable, Reusable) principles in data storage.
• Data Visualization & Automation: Built interactive dashboards using Python, SQL, and visualization tools to streamline scientific documentation and decision-making.

This experience solidified my expertise in data engineering, ETL, cloud-based storage, and knowledge graph development, contributing to data-driven research advancements in laser-plasma physics.

Otto-von-Guericke University Magdeburg
Student RPA Developer - GCP focus
February 2024 - November 2024 (10 months)
Magdeburg, Saxony-Anhalt, Germany

Ever wondered how AI can supercharge hiring? As a GCP-Focused Research Assistant, I architected a "Cognitive RPA" proof of concept that transforms dusty PDF resume piles into a live, cloud-powered talent matcher. Rather than having recruiters wade through documents, we built a Flask-based portal where candidates submit forms, upload CVs/cover letters, and instantly learn which open roles suit their profile—powered by Google Cloud.

My daily toolkit included:
• Document AI & Vertex AI (NLP): We extracted skills, education, and work history from semi-structured documents, then normalized terms (for example, mapping "Java" and "JVM" under one skill umbrella). This dramatically boosted parsing accuracy—40 percent better than a typical ATS.
• BigQuery Pipelines (TF-IDF & Cosine Similarity): I designed tables for term frequencies, inverse document frequencies, and TF-IDF vectors. A lightweight Python Cloud Function automatically computes applicant-to-job similarity scores and ranks the top 5 matches—so recruiters see best-fit candidates as soon as an application lands.
• Cloud Composer (Apache Airflow): Orchestrated tasks that ingest form data → call Document AI → push enriched text into Vertex AI → compute TF-IDF → load results into BigQuery. Everything runs hands-off, freeing HR from tedious manual steps.
• Infrastructure as Code & CI/CD: Using Terraform, Docker, and Cloud Run, I containerized microservices and automated deployments. The result? A repeatable, secure environment that scales seamlessly.

To give HR instant visibility, I built a Looker Studio dashboard showing application volumes per role, fit-score distributions, and time-to-decision metrics. Stackdriver monitoring alerts us if any pipeline component lags or exceeds cost thresholds. The final result: a 75 percent reduction in initial screening time and a fully documented, blue-print architecture that can be adapted to any data-intensive workflow.

Otto-von-Guericke University Magdeburg
Wissenschaftlicher Hilfskraft
March 2023 - September 2023 (7 months)
Magdeburg, Saxony-Anhalt, Germany

• Collaborated on Research Data Management (RDM) projects, emphasizing the significance of data handling in scientific research.
• Assisted in creating Data Management Plans (DMPs) to enhance data structure, minimize data loss, and support funding applications.
• Contributed to discussions advocating the adoption of appropriate data management tools.
• Played a key role in redesigning and updating bilingual OVGU-RDM websites, optimizing content organization.
• Ensured compliance with FAIR and CARE principles, legal regulations, and research ethics guidelines.
• Actively participated in Egotech training sessions and online conferences to stay updated on RDM developments.

Accenture
Google Cloud Winter School
February 2023 - March 2023 (2 months)
Magdeburg, Saxony-Anhalt, Germany

Apart from the discussion of numerous topics around Cloud Computing, the course
particularly covered the following contents:
• theoretical foundations for the operation and use of Cloud
• interaction with the Google Cloud and its technologies
• handling complex application examples using the Google Cloud

Universitätsmedizin Magdeburg
Technischer Mitarbeiter IT
May 2022 - December 2022 (8 months)
Magdeburg, Saxony-Anhalt, Germany

As a Technischer Mitarbeiter in Datenintegrationszentrum I work on utilizing healthcare data, standardizing documentation, and supporting clinical research for the Project MIRACUM.
• Deploying software in the local environment and intranet.
• Completed FHIR server research and implementation project.
• Implemented OMOP data model for Medical Informatic student.
• Deep digging into database for healthcare insights.
• Python Scripts to automate the manual process of ETL.
• Worked on Postgres SQL for the data transformation.
• Collect, store, and retrieve medical data for analysis and reporting.

TTEC

1 year 9 months

Real Time Analyst
November 2020 - September 2021 (11 months)
Ahmedabad, Gujarat, India

Workforce Scheduling & Planning –

• Oversee staff planning activities & scheduling of multi skilled agents across multiple line of businesses as per historical contact patterns
• Proficient in IEX NICE & Aspect WFM Scheduling
• Work with operational and support teams to effectively plan non-productive time – shrinkage etc
• Staffing meetings with client on a weekly basis to review past performance and determine future staffing needs.

Real Time Management –
• Keep tracking of absenteeism and flag any staffing challenges
• Closely interface with external clients to ensure comprehensive analysis of volume patterns, intra- and inter-day activities, and provide guidance as needed in real time to ensure optimal productivity and efficiency
• Point of contact for PTO requests
• Monitor staffing levels against a scheduled plan to efficiently handle incoming work units at the prescribed service levels
• Managed teams in remote locations
• Monitoring of intraday performance, optimizing and managing resource based on real time trends of volume and SL.

Fraud Prevention Representative
January 2020 - October 2020 (10 months)
Ahmedabad, Gujarat

I worked for AirBnB as a fraud prevention representative.
Receive and respond to customer concerns over chats and emails.
Identifying different fraud being carried out report and solve them.
Meet the productivity and quality targets on a daily basis
Provide a WOW customer experience with my ability to solve customer concerns
Achieve high levels of customer delight.

Pooja Priya Construction
Trainee Mechanical Engineer
August 2019 - December 2019 (5 months)
Visakhapatnam, Andhra Pradesh, India

Ensure compliance of execution of all mechanical jobs at the site as per contract terms

Follow up with Customer/Client on project activities as required

Ensure compliance to all Safety standards at the project site

Review of work breakdown structure.

Regular site supervision of projects.

Brandix
Executive Trainee
February 2019 - August 2019 (7 months)
Visakhapatnam, Andhra Pradesh, India

Led the end-to-end redesign of garment production workflow to eliminate systemic defects (21–22% → ~12%) using Lean (Kanban), Six Sigma (DMAIC), and Just-in-Time (JIT) principles — shifting from siloed execution to a visible, synchronized, and traceable value stream:

Key Interventions:

• Dynamic Line Segregation: Grouped stitching lines by destination country + introduced color-coded Kanban cards & batch labels to prevent cross-contamination and ensure batch lineage.

• Real-Time Production Visibility: Installed digital dashboards across the shop floor showing live WIP (Work-in-Progress), line throughput, and staging area status — democratizing data beyond management.

• JIT Synchronization: Reduced cutting-to-stitching handover lag from hours → ≤30 mins, eliminating unstructured holding areas and minimizing garment misplacement.

• Ergonomic & Quality Upgrades:
• Provided fabric-matched gloves to reduce snagging/defects
• Consolidated QA into a single hub with balanced workload allocation
• Redesigned layout for straight-line flow: Post-QA → 3rd-party audit → Final staging (no intermediate buffers)

• Smart Final Staging:
• Zoned holding area by unique shipment ID (linked to destination country)
• Integrated barcode scanners + monitors showing real-time packing/shipment status & pending volume

Outcome:

• ~45% reduction in defect rate within 4 months
• Near-zero "missing garment" incidents
• Improved on-time shipment compliance by 30%
• Laid foundational experience in process digitization, operational transparency, and human-centered workflow design — principles I now apply in data infrastructure, visualization, and FAIR-compliant knowledge systems.

GITAM AEROMODELLING CLUB
Co-Founder
September 2016 - April 2019 (2 years 8 months)
Visakhapatnam, Andhra Pradesh, India

Started Aeromodelling Club in GITAM University for all the aerospace enthusiast, a place where they can gather discuss their ideas and bring life into them.

Conduct national level workshop on Ornithopter with participants coming from 3 different states and numbering more than 150.

Acted as President till 2019 from its inscription.

Tata Motors
Summer Intern
May 2018 - June 2018 (2 months)
Jamshedpur

I have worked in Quality Assurance department of TATA MOTORS, Jamshedpur. Here I have carried out a detailed process validation of CNC Machine as a part of my internship project.

Education

Otto-von-Guericke University Magdeburg
Master's degree, Digital Engineering · (April 2021 - March 2025)

Gandhi Institute of Technology & Management (GITAM) University, Visakhapatnam
Bachelor of Technology - BTech, Mechanical Engineering · (2015 - 2019)

Sri Chaitanya College of Education

intermediate, Mathematics , Physics , Chemistry · (2013 - 2015)

Kendriya Vidyalaya

secondary education · (2003 - 2013)

Gandhi Institute of Technology & Management (GITAM) University, Visakhapatnam

Bachelor of Technology - BTech, Mechanical Engineering