Suman Mahapatra

AI and Automation Engineer · London

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PROFILE

I build AI agent systems and automation for regulated, document-heavy businesses such as accountancy practices and energy brokers. They read the records, do the work across ledgers, tax, pricing and government systems, check their own results, and stop for a person before anything is sent. An engineer by training, and **sole inventor on a granted Indian patent**.

IMPACT

About 2,200
staff hours of manual work removed each year

About £44,000
a year, at £20 an hour staff cost

About 25
working systems over nine external APIs

About 4,000
purchase documents posted to 30+ ledgers in three months

EXPERIENCE

MAP Accounting, Harrow

AI and Automation Engineer (industrial placement) — Sep 2026 to Aug 2027
Finance Operations and Automation Analyst (intern) — May to Aug 2026

Chartered Certified Accountants serving several hundred UK owner-managed businesses.

- Designed, built and run the firm's agent platform: multi-agent pipelines on large language models that plan, carry out and verify accounting and compliance work, with a human approval gate before any irreversible action.
- Made the firm's hardest work agentic: HMRC checks answered from the records, VAT cases rebuilt across years of ledgers, year-end accounts drafted and verified, intercompany loans traced across company groups.
- Integrated HMRC, Companies House, QuickBooks Online, QuickFile, Google Workspace and Microsoft OneDrive over REST and OAuth 2.0.
- Built document pipelines (PDF parsing, OCR, classification, automatic filing) and a full-text search service over the firm's mail, documents and records (SQLite FTS5).
- Automated statutory filing portals in the browser with state-machine runbooks and verification at every step.
- Guardrails throughout: dry runs by default, an audit trail on every write, a library of precedent and past rulings so a person is asked a question once, secrets kept in the OS keychain.

State Load Dispatch Centre, Gujarat, India

Summer 2022

Trainee Engineer, high-voltage electrical assets. Monitored 400kV and 220kV transmission infrastructure at a national grid control centre; wrote Python scripts to parse real-time telemetry and surface anomalies.

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PROJECTS

Siteworks Price Book LIVE

suman1-cpu.github.io/siteworks-price-book

A lookup of published UK gas and electricity siteworks prices, built for energy brokers. The AI ask box answers only from the matching price rows, so it cannot make a figure up.

Cloudflare Worker, GitHub Pages

Mortgage CRM BUILD STARTS OCTOBER 2026

For a UK mortgage advice firm: tracks each client's product end date, warns six months ahead, drafts the email, and files incoming documents with AI.

Planned: Django, Postgres, Microsoft Graph, LLMs

Gemforge IN PROGRESS

Ring photos in, CAD file out: a few photos of a ring become a Rhino 3D model a jeweller can use. The AI renders its own result, compares it with the photos and corrects itself.

Next.js, computer vision, Rhino .3dm

EARLIER ENGINEERING

- **Vision Cane.** Granted Indian patent (April 2023), sole inventor. A microcontroller product designed end to end: the electronics, a multi-layer PCB, and firmware in C and C++ that turns ultrasonic sensing into output in under 10 milliseconds.
- **Royal Academy of Engineering smart city pilot** (2022). Sensors and a Python data pipeline on live municipal infrastructure that cut inspection resource use by about 40%.
- **Closed-loop control and validation rig** (2026). PID temperature control with unattended calibration cycles, to ±0.1 °C against a reference probe.

EDUCATION

MSc Advanced Electronic and Electrical Engineering

Jan 2026 to present

Brunel University London (IET accredited), with an industrial placement year. Modules: Embedded DSP and FPGA Systems; Applied Sensors, Instrumentation and Control; Power Electronics and Drives; AI System Techniques.

B.Tech Electronics and Communication Engineering

2020 to 2023

India. First Class with Distinction.

Diploma in Electronics Engineering

2017 to 2020

Gujarat Technological University. First Class with Distinction.

SKILLS

Automation and AI	Python · LLM agents and orchestration · REST and OAuth 2.0 · document parsing and OCR · browser automation · SQL and SQLite full-text search · Google Apps Script · Cloudflare Workers
Data	NumPy and pandas · Power BI · SQL
Engineering	C and C++ · embedded firmware · PCB design · control systems · MATLAB