Samonwita Sarker

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Education

Chittagong University of Engineering and Technology (CUET) **2023 – 2027 (Expected)**
B.Sc. in Computer Science and Engineering; CGPA: 3.51/4.00 (latest term: 3.85) *Chattogram, Bangladesh*

Experience

BdREN Innovation (Cortex) **Sep 2026**
Team Lead, Crawler Team (Industrial Attachment) | GitHub *Bangladesh*

- Led the five-person crawler team for Cortex, which crawls a website into a vector database and answers questions with citations; split the work into owned portions and took it through review.
- Built the CUET scraper in **Python** (JSON API first, headless-browser fallback, 26-check verification), capturing **735 documents, 382 faculty profiles, and 1,106 linked files** with source provenance.

Fleet AI, Inc. **May 2026 – Aug 2026**
AI Evaluation Contractor *Remote*

- Authored **70+ long-horizon agentic AI evaluation tasks** across simulated enterprise environments.
- QA-reviewed peers' tasks for rubric coverage, action counts, ambiguity, and project-rule compliance.

PIERRA **2025**
Freelance Web Developer | Website *Montreal (Remote)*

- Shipped a bilingual (EN/FR) site for an exterior design firm, brief to launch, in **Next.js and Tailwind CSS**.
- Kept all copy in one locale-keyed layer so both languages stay in step; built the gallery and consultation form.

Projects

Greenlight: Robot Arm Simulator | *Next.js, Three.js, TypeScript, Zustand* 2026 | Live | GitHub

- Led development of an **IUT Techathon 2026 finalist**: a 3D robot arm driven six ways (joystick, keyboard, voice, a Gemini voice agent, PIN entry, natural language) through one motion pipeline.
- Wrote the **IK planner**, the **safety gate** that validates every move, the executor, and the input paths.

Kaker Theng: Handwriting to Font (Solo) | *Python, FastAPI, Next.js, HarfBuzz, fontTools* 2026 | Live | GitHub

- Built a web app that turns handwriting, drawn in the browser or photographed from a printed template, into a working **Bangla and English font** (TTF and WOFF2).
- Kept Noto Sans Bengali's shaping tables and swapped in the writer's outlines, so reph, phala and conjuncts shape correctly; a complete font renders **99.4% of consonant clusters** in 28M words of Bangla Wikipedia.

Sixpence: Personal Finance Ledger | *PHP 8, PostgreSQL* 2026 | Live | GitHub

- Built and deployed a finance app with **no framework and no third-party dependencies**, writing the PDF export engine and SMTP client from scratch; budgets, recurring bills, savings goals, and reports in 12 currencies.
- Secured with prepared statements, CSRF tokens, lockout, and a strict CSP; **68 tests** run in CI on PHP 8.1–8.4.

DimSum: LLM-Assisted Energy Optimizer | *Bun, TypeScript, Gemini API* 2026 | Live | GitHub

- Built the Gemini stage turning plain-English operator notes into structured directives for a 24-hour campus energy plan, and a **deterministic guardrail layer** that repairs or discards unsafe model output.
- Cut median model latency from **5.7s to 2.3s**; all ten published scenarios match the organisers' reference cost.

Chrome Extensions (Solo): RIPHours & TabSaver | *JavaScript, Chrome APIs* 2025 | RIPHours | TabSaver

- RIPHours (**400+ installs**): privacy-first time tracking with per-site limits and zero network requests.
- TabSaver (**600+ installs**): restores whole tab groups in one click, freeing memory without losing context.

Research & Publications

- **A Machine Learning and Explainable AI-Based Multiclass Police Fraud Prediction Scheme with SHAP Based Interpretability.** M. Chowdhury, J. Islam, Md. A. I. Semon, **S. Sarker**, M. M. Barua, A. Akter. *ICECTE 2026*, IEEE. IEEE Xplore
- **7th place, DravidianLangTech @ ACL 2026 Shared Task (Telugu Prompt-Style Recovery).** First-author system paper on nine-way Telugu style classification. Paper | Code

Technical Skills

Languages: C++, Python, TypeScript, JavaScript, Java, C, PHP, SQL | **Tools**: Git, Docker, Linux, LaTeX
Web: React, Next.js, Node.js, Express.js, PostgreSQL, Firebase, Tailwind CSS, Three.js
AI/ML: PyTorch, scikit-learn, Hugging Face Transformers, NLP, multimodal deep learning, SHAP, Gemini API

Leadership & Competitions

- **Leadership:** President, *CUET MUN Club* | Vice President (Organizing), *CUET Computer Club* | General Secretary, *IEEE CS CUET Development Wing* | Joint General Secretary, *CUET Debating Society*
- **Competitions:** Finalist at IUT Techathon 2026, SciBlitz 2.0 AI Hackathon 2026, Infinity AI BuildFest 2026, PoliMemeDecode Datathon (CUET CSE Fest 2025), and MicroOps Hackathon 2025.