Malak Abdelhakim

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EDUCATION

Stevens Institute of Technology, Hoboken, NJ *Dec 2025*
Bachelor of Science in Computer Science | GPA: 3.6 | Pinnacle Scholar
Relevant Coursework: Operating Systems, Systems Programming, Computer Architecture, C Programming

Cornell Tech | Online Certificate in Machine Learning Foundations

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Java, SQL (PostgreSQL, PL/pgSQL), C, HTML, CSS
Frontend: React, Next.js, Vite, Tailwind CSS, React Router, Recharts, Streamlit, Altair, Progressive Web Apps
Backend: FastAPI, Flask, Node.js and Express, REST APIs, Pydantic, SQLAlchemy, Alembic, JWT Auth, Redis and RQ
Databases: PostgreSQL, Supabase (row-level security), SQLite, Azure SQL, MongoDB
Cloud and DevOps: Docker, GitHub Actions (CI), Git, Vercel, Render, Neon, Cloudflare Pages and R2, Stripe, Resend
Testing and Quality: pytest, Vitest, React Testing Library, Playwright, Ruff, mypy, ESLint, Prettier
AI, ML and Data: scikit-learn, pandas, NumPy, SciPy, NLP, Feature Engineering, TF-IDF and Bag of Words, Logistic Regression, Naive Bayes, KNN, Image Classification, Anthropic Claude API, OCR (Tesseract)
Professional: Agile Methodologies, Requirements Gathering, Business Analysis, Data Analysis, Microsoft Excel, Digital Marketing, Video Editing

EXPERIENCE

A Chance In Life, New York, NY | ***Special Projects Assistant*** *Apr 2026 - Present*
- Built and deployed two production web platforms for the organization, npastudio.com and wellnesslab.achanceinlife.org, owning each from requirements gathering through design, development and launch
- Collaborate with organizational stakeholders to translate operational and business needs into technical requirements and user-friendly, scalable solutions
- Build and maintain structured data workflows for collecting, processing and analyzing program data across multiple stakeholders supporting international program operations
- Make system design decisions balancing speed, reliability, security and maintainability, and coordinate across teams to deliver key initiatives on time

Break Through Tech, New York, NY | ***AI Fellow*** *May 2023 - Apr 2024*
- Selected from 1,500+ applicants for a 12-month program including Machine Learning coursework with Cornell faculty, experiential learning and mentorship from industry professionals
- Collaborated with a team on an industry project identifying salient parts of customer service conversations, experimenting with combinations of vectorization techniques and models
- Achieved 92% accuracy in a Kaggle image classification competition hosted for the New York Botanical Garden

ASAPP, Remote | ***Machine Learning Engineer Intern*** *Aug 2023 - Dec 2023*
- Built supervised learning models to predict salient sentences in customer service conversations using feature engineering and vectorization techniques on large-scale customer interaction data
- Systematically tested model and vectorization combinations (TF-IDF and Bag of Words with Logistic Regression and KNN) to identify the best performing approach for the project advisor
- Evaluated models with accuracy, precision, recall, F1-score and ROC AUC to drive iterative improvement
- Built backend data processing workflows with structured datasets and APIs to support end-to-end model development

Stevens Institute of Technology, Hoboken, NJ | ***Research Assistant*** *May 2023 - Aug 2023*
- Collaborated with faculty to evaluate AI tools (ChatGPT) in educational settings, analyzing effectiveness for assignment creation and instructional support
- Designed and assessed AI-generated assignments on Java design patterns, implementing and testing Java solutions to evaluate correctness and usability
- Documented and presented findings on the feasibility and limitations of AI-assisted teaching tools to inform future implementation

A Chance In Life, New York, NY | ***Marketing Intern*** *Dec 2020 - Mar 2021*

- Helped raise $2,880 in sponsorships for children through a team-led social media marketing campaign
- Gained hands-on experience in marketing and negotiation while supporting organizational campaigns

PROJECTS

NPA Studio | *Python, Flask, PostgreSQL, Redis, Stripe, Claude API* npastudio.com

- Built and deployed a production platform delivering fundability assessments to nonprofits, advisors and funders, with PostgreSQL (SQLAlchemy, Alembic migrations), Stripe tiered payments and Cloudflare R2 storage
- Engineered a document pipeline that extracts text from uploaded PDFs with an OCR fallback (pypdf, Tesseract), runs asynchronously on Redis/RQ workers and integrates the Claude API to generate reports
- Secured the platform with TOTP two-factor authentication, bcrypt hashing, CSRF protection, rate limiting and file type validation; integrated transactional email with Resend

Health and Wellness Lab | *TypeScript, Next.js 15, React 19, Supabase* wellnesslab.achanceinlife.org

- Built a mobile-first progressive web app for food tracking with in-browser barcode scanning (ZXing), Open Food Facts nutrition data and locally computed Nutri-Scores
- Implemented accounts and storage with Supabase (PostgreSQL, Auth) and row-level security; deployed on Cloudflare Pages with serverless functions for signup and admin password reset
- Developed the frontend with Next.js, React and Tailwind CSS, including a food diary and a rewards system to drive engagement

Finance Tracker | *React, FastAPI, PostgreSQL, Playwright* Live Demo | Code

- Built a full-stack expense tracker with a CSV import pipeline handling varied bank formats (delimiters, encodings, date and amount formats, split debit and credit columns) and flagging duplicates across statements
- Designed a categorization pipeline of user rules, merchant history and a hand-written per-user multinomial Naive Bayes classifier trained only on user-confirmed labels, so the model never learns from its own guesses
- Added budgets with pace-based overspend warnings, recurring-charge detection (weekly to yearly, including price changes) and month-to-date spending insights
- Enforced per-user data isolation with JWT auth and a test that enumerates every endpoint from the OpenAPI schema; 149 backend, 25 frontend and 5 Playwright end-to-end tests run in GitHub Actions
- Deployed on Vercel, Render (Docker) and Neon with a no-sign-up demo that creates a private, self-deleting account for each visitor

Health and Performance Aggregator | *Python, FastAPI, scikit-learn, Streamlit* Live Demo | Code

- Built a FastAPI service and Streamlit dashboard that ingest CSV, Apple Health and Fitbit exports and compute rolling training load, a 0-100 recovery score, burnout risk, correlations and anomaly detection
- Trained an L2-regularized logistic regression to predict next-day low readiness from ten rolling features (ROC-AUC 0.79 on a time-ordered holdout, reported against a 0.82 persistence baseline); validated per person on the public PMData dataset
- Wrote 120+ pytest tests covering parsers, analytics, the API, the ML model and migrations, run in GitHub Actions against SQLite and PostgreSQL alongside Ruff and mypy; deployed with Docker on Render and Streamlit Community Cloud