Lydia Koleosho

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Education

The University of Edinburgh Sept 2022 – May 2028
MInf Informatics (Computer Science) *Edinburgh, UK*

- Relevant courses: Software Engineering and Professional Practice, Software Testing, Foundations of Data Science, Algorithms and Data Structures, Computer Security, Automated Speech Recognition, Computer Graphics (Geometry and Simulation), Object Oriented Programming.

King's College School, Wimbledon (KCS) Sept 2019 – May 2021
International Baccalaureate Diploma, 43 points (HL Mathematics AA: 7) *London, UK*

Experience

Engineering Academy Participant Oct 2025
Goldman Sachs *London, UK*

- Explored engineering across Asset & Wealth Management, FICC & Equities, Risk, Investment Banking, and Site Reliability Engineering; shadowed engineers building large-scale data and software systems.
- Designed and pitched a mobile expense-tracking app in a team product-design challenge under tight time constraints.

Software Engineering Intern, Capital Technology June – Aug 2025
J.P. Morgan Chase *Glasgow, UK*

- Built data pipelines for securitised assets, deployed to pre-prod and UAT with bulk release scheduled for the following quarter, working within Agile delivery processes.
- Stack: Python, Databricks (PySpark, SQL), Liquibase, Jira, Bitbucket, Postman.
- Secured a return offer for a Summer 2026 internship.

Women in Technology Spring Week Intern Apr 2024
Maven Securities *London, UK*

- Trained on Maven's tech stack and trading-data workflows (extraction, validation, manipulation) across binary data, strings, and files.
- Used Python (pandas, pivot tables) to build trading-data visualisations supporting informed trades.
- Applied prior C and Java OOP experience to build a C++ foundation; debugged real company code via static and dynamic analysis, unit tests, and printf debugging.

Spring into Technology Spring Week Intern Apr 2024
J.P. Morgan Chase *Glasgow, UK*

- Explored career paths in technology through sessions with industry leaders and technologists; competed in the #CodeForGood Hackathon and won the #MakeItHappen Ideathon (see Hackathons).
- Received a return internship offer.

Lead Tutor, Code Cadets Feb 2024 – Present
Computing Club *Edinburgh, UK*

- Delivering coding clubs five times weekly to 80+ students aged 5–12 across seven classes as part of a teaching team.
- Teaching Python, JavaScript, and HTML/CSS, building problem-solving and collaboration skills through coding challenges.

Course Co-Creator — "Living Together as Equals in Informatics" Oct 2023 – May 2024
University of Edinburgh *Edinburgh, UK*

- Co-developed a course on gender dynamics, security, and equality in informatics labs, adopted for incoming School of Informatics students from 2024.

Class Representative, 2nd Year Computer Science Sept 2023 – Apr 2024
University of Edinburgh *Edinburgh, UK*

- Gathered and relayed student feedback on course content, delivery, and assessment to the School of Informatics through weekly meetings.

Data Product Intern July – Aug 2023
Kubrick Group *London, UK*

- Automated an onboarding-group allocation process using Python (Pandas) and OOP over large Excel datasets, factoring in academic background and aptitude-test scores.

Mathematics Tutor Jan 2022 – Present
Harris Academy Wimbledon, Superstar Learners & Independent *London, UK*

- Tutored 15+ students across KS2–A Level in Maths and English; requested by the Assistant Principal at Harris Academy to run Year 11 GCSE interventions for 20–30 students, including 4-hour half-term sessions for up to 60 pupils.

Projects

Git Reimplementation (ugit) | *Python* | *github.com/lia-213* July 2026 – Present

- Rebuilt Git's internals from scratch in Python: content-addressed blob, tree, and commit storage, refs, and an index-based staging workflow; extended Leshenko's "Write yourself a Git!" tutorial with bug fixes and a full test suite.
- Implemented branches, tags, checkout (including detached HEAD), diff (working directory/index/commit, `--cached`), fast-forward and three-way merges via `diff3`, and local-disk remotes with fetch and push.

Software Testing Portfolio — Medical Drone REST API | *Java, JUnit 5, Mockito, REST Assured, JaCoCo, GitHub Actions*

- Designed and implemented 741 automated tests across 7 techniques (unit, integration, contract, parameterized, BVA, equivalence partitioning, performance) with 100% pass rate; instrumented with JaCoCo enforcing ≥50% line coverage per package via Maven Surefire.
- Built a GitHub Actions CI pipeline on every push; conducted SonarLint code review identifying cyclomatic complexity and null-safety issues; validated all endpoints via 40+ Postman E2E tests against live service.

Autonomous Golf-Ball Collection Robot | *Python, ROS, YOLOv8, OpenCV, Roboflow* Jan – Apr 2026

- Engineered a real-time object-detection system for a TurtleBot robot automating tee-resetting in indoor golf simulators, achieving 90% end-to-end placement success across 20 trials.
- Optimised a CNN for Raspberry Pi deployment, balancing precision and recall to eliminate false-positive "ghost" detections.
- Ran a collaborative peer-review annotation workflow, improving dataset reliability and model mAP@50.

Reliable Transport Protocols over UDP | *Python, Linux Traffic Control; 90%* Jan – Mar 2026

- Implemented Stop-and-Wait, Go-Back-N, and Selective Repeat sliding window protocols at the application layer over UDP sockets, including sequence numbering, ACK handling, and duplicate detection.
- Emulated link conditions (bandwidth, delay, packet loss) using Linux TC; measured throughput and retransmission counts across retransmission timeout and window-size configurations.
- Characterised insertion–deletion trade-offs and throughput scaling across propagation delays of 5ms, 25ms, and 100ms at 5% packet loss, with window sizes increasing in powers of two.

3D Soft-Body FEM Simulation | *C++, Eigen, PolyScope; 95%* Jan – Mar 2026

- Implemented linear and corotational finite element methods for deformable tetrahedral mesh simulation, including stiffness, lumped mass, and Rayleigh damping matrices assembled via Eigen sparse solvers.
- Benchmarked 46×–103× step-time penalty of per-frame corotational stiffness refactorisation vs. constant linear solve; characterised volume-inflation and sluggish-rotation artefacts of linear FEM under large impulses.
- Deployed implicit Backward Euler integration; analysed trade-offs between numerical stability, visual plausibility, and real-time performance across low- and high-tet-count scenes.

Natural-Language Medical Drone Dispatch Platform | *Java, Spring Boot, FastAPI, Streamlit; 88%* Sept – Dec 2025

- Built an integrated platform for natural-language dispatch planning and scenario analysis for medical-supply drones, with microservices, RESTful APIs, and Pydantic validation.
- Integrated Google Generative AI (Gemini) for LLM-powered language processing; containerised services with Docker.
- Developed an interactive Streamlit frontend using PyDeck for map rendering and Pandas for data manipulation.

Hackathons

J.P. Morgan #MakeItHappen Ideathon – **1st Place** (individual): independently conceptualised, wireframed, and pitched a food-app idea to spring interns across UK sites.

Mercuria Hackathon (Switzerland) – **2nd / 11**: selected from 200+ applicants; tackled CO_2 monitoring, voyage-route optimisation, and cargo logistics for the maritime energy transition.

J.P. Morgan #CodeForGood – built an interactive website (HTML/CSS/SCSS, JavaScript, Python, Google Translate API) for a Scottish charity supporting Afghan refugees into tech roles.

HackUPC (Barcelona) – built an offline, multi-user in-flight experience (games, music, Pictochat-style chat) for Vueling's challenge. **Maven Securities Hackathon** – used scapy to extract binary packet data from PCAP files. Also: AdaHack 2024.

Technical Skills & Certifications

Languages: Java (OOP), Python (pandas, PySpark, PyQt5), C++, C, SQL, JavaScript, HTML/CSS, SCSS
Tools & Frameworks: React, Angular, Spring Boot, FastAPI, Docker, Databricks, ROS, OpenCV, YOLOv8, JUnit 5, Mockito, REST Assured, Git, Jira
Spoken Languages: English (native), Spanish (B2/C1), French (B1/B2)
Certifications: Databricks Certified Data Engineer Associate