# Shreya Chakravorty

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## Professional Summary

I am an MComp Computer Science graduate currently pursuing an MSc in Data Science, combining a strong foundation in cybersecurity, analytics, and secure software design. My previous projects involved vulnerability detection, input sanitisation, encryption, and network forensics using tools like Flask, Wireshark, and Kali Linux. The analytical and data driven skills I am developing through my MSc will further support Bank of America in detecting threats, interpreting complex data, and strengthening proactive defence strategies.

## Education

**University of Surrey** | MSc Data Science with Professional Postgraduate Year *Sept 2025 – Sept 2027*

- Currently undertaking postgraduate study focused on machine learning, statistical data science, and data engineering.

**Newcastle University** | MComp Honours Computer Science *Sept 2021 – June 2025*

- Relevant Modules: Security and Programming Paradigms, System and Network Security, Risk and Trust Management, Information Security and Cryptography, Group Project in Security and Resilience.

## Experience

**Software Developer** | PHP, Laravel *Dec 2024 - Feb 2025*

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- Conducted security analysis of codebase, identifying 3+ vulnerabilities regarding input validation, database security, CSRF protection, and documented manual and automated tests to address issues raised.
- Troubleshot critical development environmental errors (e.g., unresolved table column issues) through research and systematic testing, advocating team collaboration to address systemic code flaws.

**Lab Support Assistant (LSA)** *Sept 2024 - June 2025*

*Teaching Assistant*

- Completed ILTHE training and used teaching methods to support stage 1 students in areas such as databases and system architecture.
- Translated complex theoretical concepts into explanations for students, improving comprehension and confidence in coursework.

## Projects

**Fake News Detection System** | Python, Django *Feb 2025 – Mar 2025*

*Fourth Year, Group Project*

- Collaborated on a machine learning and blockchain-based system to detect and log misinformation articles, integrating a logistic regression model (TF-IDF vectorisation) with a smart contract on the Ethereum blockchain for tamper-resistant storage.
- Implemented an input sanitisation module to protect against SQL, NoSQL, and XSS injection attacks using regex-based pattern matching, character whitelisting, and length constraints to prevent adversarial manipulation.
- Enhanced system security through HTTPS/TLS, Google OAuth authentication, audit logging, and adversary mitigation (rate-limiting).

**Budget Management System** | Python, Flask, JavaScript, Jinja2, SQLite, HTML, CSS *Feb 2024 - June 2024*

*Third Year, Dissertation Project*

- Created a budget management website with user authentication, personalised budget calculations, tips, and quizzes.
- Used a Flask framework with routes and HTML templates that were rendered with Jinja2, applied CSS styles for layout and presentation, used SQLAlchemy to manage database interactions, incorporated line and pie charts using chart.js to display trends.

**Capture-The-Flag Cybersecurity Lab Series** | Kali Linux, Python, Wireshark, C *Sep 2023 - Dec 2023*

*Second Year, Individual Project*

- Completed over 30 CTF-style labs via Kali Linux/Azure-hosted environments, covering cryptography (AES, hashing, k-anonymity), web exploitation (SQL and code-injection), network forensics (packet capture analysis with Wireshark), and access control models.
- Performed end-to-end vulnerability assessment and exploitation, using industry tools (Nmap, Burp Suite, CyberChef, Ghidra, Curl / HTTP Tools) to reverse-engineer binaries, craft buffer-overflow and privilege-escalation proofs-of-concept.
- Developed skills in identifying and mitigating security risks in a controlled environment.

**Lottery Web Application** | Python, Flask *Sep 2022 – Dec 2022*

*Second Year, Individual Project*

- Made use of various security techniques to secure a lottery web application using the Flask framework.
- Implemented login systems with input validation, hashed password storage, and multi-factor authentication (reCAPTCHA and OTPs).
- Encrypted sensitive data (passwords and lottery draws) to ensure data security and implemented role based access control (RBAC).

## Skills

- Programming Languages: Python, Java, Go, C, PHP, JavaScript
- Data Visualisation / Analytics: Dash, Plotly, Altair, Matplotlib
- DevOps: Docker, Kubernetes, Azure VMs, Prometheus, Grafana
- Web & Backend Frameworks: Flask, Laravel, Hibernate, Jinja2
- Databases & ORMs: MySQL, SQLite, MongoDB (PyMongo)

## Achievements

- Completed the Data Innovation Bootcamp programme from the National Innovation Centre Data, Newcastle.
- Received Subject Commendation Award for Computer Science in Kuwait.