

# LEA BRODY-HEINE

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## EDUCATION

### University of St Andrews

MSc Computer Science, Focus in AI | GPA: First Class Honors

St Andrews, Scotland

Graduation August 2024

### Brown University

Bachelor of Arts, International and Public Affairs | GPA: 4.0

Providence, RI

Graduated May 2023

## TECHNICAL SKILLS

**Programming Languages and Frameworks:** Python, Java, SQL, HTML, CSS, Bootstrap, JavaScript, Node.js, Express, RESTful APIs, MongoDB, Vue.js, React, Angular, SAT4J, LogicNG, unit testing

**Tools and Technologies:** pandas, scikit-learn, TensorFlow, PyTorch, Azure, Data Visualization, Data Analytics, Statistics, Artificial Intelligence, Machine Learning, UX/UI Design, Git, GitHub, D3.js, PowerShell, Bash, Jupyter Notebook, Miro, Jira, Asana, Tableau, Figma

**Methodologies and Other Skills:** Object-Oriented Programming, Agile, Scrum, Kanban, DevOps, UML, Data Structures, Microservices, Cross-Functional Collaboration, Software Development, Organization, Product lifecycle management, Entrepreneurship, Problem-solving

## EXPERIENCE

### Software Engineer, Independent Contractor

GSI Water Solutions, Inc

Current

Bend, OR

- Develop a comprehensive document search system to access project proposals stored on the company's server, reducing search time by at least 60%.
- Conduct requirements analysis and system design, ensuring the architecture meets stakeholder needs.
- Execute document indexing and search functionality using Python and relevant libraries, enabling faster document retrieval.
- Design an intuitive user interface and integrate the system with existing server infrastructure.
- Perform iterative testing, feedback sessions, and secure access controls to enhance system reliability and security.
- Lead entire product lifecycle from initial requirements gathering to final deployment and user training.

### Scrum Master, Agile Methodology

MSc Project, University of St Andrews

Sept 2023 – Nov 2023

Scotland

- Led the end-to-end development of a product, ensuring a user-centric design throughout the software development lifecycle.
- Managed cross-functional Agile sub-teams to deliver iterative feature enhancements, driving project success and user satisfaction.

### Game Development

MSc & BA Projects, University of St Andrews, Brown University

Mar 2023 – Apr 2024

Scotland, Providence, RI

- Designed a Java-based game server for "Woodland Diplomacy," enforcing game mechanics, HTTP server functionality, and JSON communication.
- Constructed "Prospector," an online multiplayer game using JavaScript, Node.js, and Express, with RESTful API integration.
- Produced the front end for a game called Superhero Escape in Brown University's teaching language, Pyret.

### Artificial Intelligence & Machine Learning Development

MSc Projects, University of St Andrews

Mar 2023 – Apr 2024

Scotland

- Designed and constructed 5 logical agents using the LogicNG and SAT4J java libraries, employing strategies such as (SPS), (SATS), and (PROBS).
- Developed a machine learning model to forecast water pump status in Tanzania, utilizing scikit-learn, pandas, numpy, and Optuna for hyperparameter optimization.
- Implemented AI search algorithms for a flight route planner, optimizing paths using uninformed search (DFS, BFS, Iterative Deepening) and informed search (A\*, Best-first search, SMA\*) based on Euclidean distance heuristics.
- Built and evaluated machine learning models to predict flight disruptions using Python, Jupyter Notebook, and scikit-learn classifiers. Performed data cleaning, feature engineering, and model fine-tuning on a large-scale Kaggle dataset.
- Developed multiclass classification models to anticipate patient outcomes, focusing on data imputation and handling unbalanced data in Python, emphasizing practical application and client presentation.

### Full Stack Web Development

MSc Projects, University of St Andrews

Mar 2023 – May 2024

Scotland

- Programmed a full stack web application using MongoDB, Node.js, Express, and Vue.js. Integrated RESTful APIs, chart.js, and open APIs.
- Built a single-page web application for trivia quizzes using JavaScript, HTML, CSS, and open APIs for dynamic question fetching and score tracking.

## INTERNSHIPS

### E-Commerce Merchandising Intern

Sephora

May 2022 – August 2022

San Francisco, Remote

- Managed and coordinated projects across 3+ cross-functional teams, streamlining workflows and improving task completion efficiency by 20%.
- Collaborated with teams of 10+ members on projects, playing a pivotal role in decision-making processes and project success.
- Analyzed large datasets to optimize e-commerce strategies, resulting in a 15% increase in user engagement. Presented findings to senior management, influencing strategic decisions.

### Legislative and Press Intern

The Office of Senator Merkley (D. – Oregon)

January 2021 – May 2021

DC, Remote

- Catalogued and managed over 50,000 pieces of constituent data using advanced CRM software, enhancing communication efficiency and response times by 30%.
- Led meetings and facilitated communication and scheduling within diverse teams of 15+ members, coordinating briefings, policy discussions, and strategic planning sessions.
- Produced detailed policy memos and briefing papers, contributing to policy decisions on crucial legislative topics.