

# Tom Lam

Computer Science Student | Deep Learning Enthusiast

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## SUMMARY

- First-year computer science student with a passion for machine learning and data science
- Solid foundation in Python programming, data structures and algorithms
- Familiar with data analysis and ML tools, e.g. PyTorch, Scikit-learn, Matplotlib

## PROJECTS 🌐

### Candycombs | **BRISTOL CSS GAMEJAM 2024** | Python, Pygame | 🐍

- Implemented a 2D Halloween-themed game as part of a team of 7
- Collaboratively developed a procedurally generated game map featuring animated characters
- Received Honorable Mention for Best Narrative and Best Gameplay

### Land Cover Segmentation with UNets | Python, PyTorch, Matplotlib, NumPy, ML | 🐍

- Implemented UNet and ResUNet-a in PyTorch
- Trained models to perform semantic segmentation on the Multi-Source Satellite Imagery for Segmentation Dataset on Kaggle
- Visualized the segmentation results, model accuracy and IOU scores with Matplotlib

### LeNet-5 from Scratch | Python, NumPy, Pillow, ML, Linear Algebra, Tkinter | 🐍 📄

- Re-implemented the LeNet-5 model from Yann Lecun's paper (1998) using NumPy
- Created a handwritten digit recognition app with my LeNet-5 model
- Implemented a primitive neural network library with a handful of NN modules

**Layers:** Linear, Conv, Flatten, RBF, ReLU, Tanh, SoftMax, Sigmoid

**Criteria & Optimizers:** MSE, CrossEntropy, BCE, SGD, Adam

**Normalization & Regularization:** MaxPool, AvgPool, BatchNorm, Dropout

**Initialization:** Xavier, Kaiming, LeCun

### Rice Image Classification | Python, PyTorch, Matplotlib, ML, Scikit-learn, Seaborn | 🐍

- Created a CNN model to classify the 5 types of rice from the Rice Image Dataset on Kaggle
- Visualized model accuracy and results with graphs and confusion matrices
- Achieved an accuracy and average F1-score of over 99%

### Fuzzy Trie | Python, OOP, Dynamic Programming, Data Structures, Unit Tests | 🐍

- Developed a prefix-tree data structure with approximate string matching function
- Re-implemented the fuzzy search algorithm modified from Shang and Merrettal's paper (1988)
- Developed following OOP principles and PIP8 Python style guide
- Utilized the Python unittest library to create test cases for the tries

## EDUCATION

### University of Bristol

B.Sc. Computer Science

Bristol, UK

Sep 2024 - Present

### University of Warwick 🎓

International Foundation Programme in Computer Science

Coventry, UK

Sep 2023 - Jun 2024

- Grade: Distinction (92%) - Pure Maths 97%. Further Maths 98%. Computer Science 90%.

## SKILLS

**Programming languages:** Python, C, Haskell

**Web Frameworks:** Django

**Data Analysis Tools:** Matplotlib, NumPy, Pandas, PyTorch, Scikit-learn, OpenCV, Pillow

**Languages:** English, Cantonese, Mandarin

## COURSES & CERTIFICATIONS

### IBM AI Engineering Specialization 🌟

Issued Jul 2024 by Coursera — Authorized by IBM