Contact

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contact@christopherteo.com

Based in Durham or Cambridge, UK

Key skills

Development in:
Visual Studio, VSCode, Unity, Sublime, Github, Matlab

Programming with:
C/C++, C# (.Net and Core), HLSL, Java, Javascript, Typescript, HTML, CSS, SCSS, Python, Matlab

Development technologies:
Unity, Unreal, Node.js, React.js, Three.js, Parcel.js, TensorFlow, PyTorch, OpenSfm

Education

The Perse Upper School: GCSE and A-Level

St Faith's School

The Vine Inter Church School

Nationality

British

Christopher Teo

https://randomuserhi.github.io

Profile

I am currently pursuing a MSc in Computer Science at Durham University (completion Sep 2025). I was awarded a BSc (1st Class Hons) in Computer Science, Durham University, in July 2024, and have over 6 years of development experience using modern tools/technologies in academia and industry via internships.

My BSc year thesis, "Exploring Mixture of Experts and Sparse Vision Transformers", explores the use of sparse models to reduce the computational cost at evaluation time. My results show that the performance of these models is improved when domain knowledge is applied to the expert specialisation; the thesis can be downloaded from my website.

Experience

PolyAI (Machine Learning Voice Assistant Service), London, UK
June 2023 – September 2023: Fullstack Development Engineer
- Wrote high level design document specifications.
- Coding in Python, React, NextJS and used SQL.
- Web design in Figma and project management in Jira.

Durham University (Dept of Computer Science, Dept of Physics), Durham, UK
October - December 2023: Lab Demonstrator for Algorithms and Data Structures (CS)
August - September 2022: XR Internship, Hololens & Oculus (Physics)
- Lead programmer in creating a Physics demo from the ground up showcasing the Hololens and Oculus for Physics undergraduate teaching.
- Programmed in Unity with custom toolkits for hand tracking and interaction.
- Features mechanics, electro-magnetics and optics simulation.

Toshiba (Cambridge Research Laboratory), Cambridge, UK
July - August 2021: Spherical Image Collection and 3D Reconstruction
- Collected spherical/equirectangular images of Cambridge to create point clouds which when put in a mesh, formed a 3D model of the city.
- Programmed tool to extract GPS coordinates and fisheye image from RAW files.
- Reconstruction performed using OpenSfM library running on GPU rack with multiple NVIDIA cards.
- For computer vision deep learning research.

MediaTek (MTK Wireless Ltd), Cambourne, UK
August 2019, July 2018, August 2017: Software for 5G Chip Testing
- Programmed test software to automate the logging of mobile network traffic from 5G baseband modems (eg. signal strength, connection speed) for quick interpretation.
- Software used for testing SoCs and 5G qualification in London.
- Worked in the development team utilising Scrum methodology.
- Also worked in bug fixing team performing code updates for field reported issues.
- Developed in C# and JavaScript.

AIXTRON Ltd, Swavesey, UK
August 2019, August 2018: Graphical User Interface implementation
- Control Interface for AIXTRON Systems.
- Created intuitive touchscreen GUI's for AIXTRON batch and roll-to-roll chemical vapour deposition reactors for depositing graphene.
- Created online tool to analyse machine data/logs to create data trees based on events for easy navigation.
- Developed in HTML5, Javascript, Structured Text (TwinCAT 3).

Selected Projects

Code, docs and more at: https://randomuserhi.github.io

Pipe Planner
NWG Hackathon 2023 – Winner, Durham University, January 2023

- First place winner (sponsored by Northumbrian Water Group) of the NWG Hackathon 2023 (3 day coding marathon).
- My team, consisting of just 2, made a pipe planning program to plan the layout of a pipe network in a given location as well as having live feedback of areas where potential faults in the pipe structure could be found.
- I implemented the pipe simulation and editor.

Olympic Oracle
Durhack 2022 – Winner, Durham University, February 2022

- Platinum prize winner (sponsored by Alteryx) of Durhack 2022 (24 hour coding marathon) where my team made a data analysis program to predict Olympic medal winners.
- I implemented the neural network back-end using TensorFlow.
- This performed machine learning on past data to predict the chances of an athlete possessing certain physical characteristics winning a gold, silver or bronze medal at the Olympics.

User Interface Project
Prog Black(belt), Durham University, February 2022

- Inspired by Roslyn/Codepen, I created a web based technology, that I named "Muffin.js", for runtime evaluation of scripting for creating light weight javascript apps on an online, fully responsive, (cloud) desktop.
- People can create packages or modules that can be imported into other apps.
- Example modules that I wrote to demonstrate Muffin's capabilities include a 2D physics module, a simple machine learning module and the base muffins module.

Computational Neural Network
Image classifier, self-implemented project

- Implemented from the ground up a neural network for classifying images.
- Uses 3 alternating convolutional (comprising 5 filters each) and pooling layers, a flattening layer and 3 dense layers.
- Wrote an API for C++ Eigen library so Unity/C# can use it for matrix calculations.
- Runs on GPU using HLSL.
- CNN distinguishes cars from trucks.

Unity 2D/3D Projects
GameJam/Hobbies, self-implemented projects

- Experience in creating 2D / 3D animation.
- Participated in GameJam to create sprite-based game in 48 hours.
- Parallax, HLSL, vertex shaders, transformations.

Computer Science Project
A level - A* awarded, The Perse Upper, February 2021

- Implemented a multiplayer server authorative game in Unity.
- Features include client side prediction, high tolerance for latency and packet loss, server rollback.
- Based on Valve's Source Multiplayer Networking design.

Neural Networks in Disease Diagnosis
Extended Project Qualification - A* awarded, The Perse Upper, June 2020

- Performed critical literature review; analysis of methods and results in the field.
- Despite neural networks achieving the accuracy of experienced human specialists for diseases such as breast and skin cancer, my project highlighted challenges such as their black box nature obscuring the transparency required for clinical qualification and overfitting/imbalanced data resulting in their use for common diseases only.
- In healthcare, another important factor is human interaction where patient consultation is as important as the diagnosis. My survey of people in the medical profession and patients showed that the rapid analysis by artificial intelligence is highly valued when coupled with face-to-face explanation/experience of a doctor.

Young Enterprise Scheme
The Perse Upper, June 2020

- My role was Head of IT and Marketing.
- Created E-commerce website and was responsible for branding of a T-shirt company formed by classmates.
- Designed logo and posters for product promotion.
- Awarded best logo design in Cambridge.

Smart WiFi Pill Dispenser
GCSE Design and Tech - A* awarded, June 2019

- Automatic pill dispenser to provide medication at right intervals and quantities.
- Integrated a 16x2 LCD character display, motion detector, motorised platter with indexing, buzzer and WiFi interface for connected devices.
- Designed and 3D printed the mechanical hardware which was driven by a Raspberry Pi Zero SBC with additional control electronics.
- Developed in Python, HTML5, JavaScript.

Cambridge Blue Plaques (volunteering with Cambridge Past, Present and Future charitable society)
Webmaster, 2017 - 2018

- Created the website showcasing the Blue Plaques around Cambridge city.
- Received appreciation award from Mayor of Cambridge in 2018.
- Featured in Cambridge Independent newspaper, March 7-13, 2018, pp 23.

Education

Durham University, Durham, UK
MSc Computer Science (MISCADA) (in progress), 2024 - Present

Durham University, Durham, UK
BSc Computer Science (First Class Honors), 2021 - 2024

- Thesis: Exploring Mixture of Experts and Sparse Vision Transformers
- Third Year: Deep Learning, Reinforcement Learning, Advanced Computer Systems, Algorithmic Game Theory, Multimedia and Game Development, Parallel Scientific Computing, Natural Computing Algorithms, Virtual and Augmented Reality.
- Second Year: Programming Paradigms, Theory of Computation, Networks and Systems, Artifical Intelligence, Data Science, Software Engineering.
- First Year: Programming, Computational Thinking, Algorithms and Data Structures, Computer Systems, Mathematics for Computer Science, Computational Tools for Engineers and Scientists.

References

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