

## PROFILE

I'm a 26 year old computer scientist based in the UK. I graduated in 2018 with a master's degree in computer science from the University of Cambridge and have been involved in a number of projects at a variety of institutions around the world since then. I'm currently working as a research scientist focussing on computer graphics, computer vision and machine learning at Microsoft's lab in Cambridge, UK. A portfolio of my recent work is available at [chewitt.me](http://chewitt.me).

## EXPERIENCE

### RESEARCH SCIENTIST - MICROSOFT

DEC 2020-PRESENT

Working at the intersection of computer graphics, computer visions and machine learning as part of the Mixed Reality & AI lab in Cambridge, UK.

### RESEARCH CONSULTANT - MICROSOFT RESEARCH

JAN-DEC 2020

Eighteen month consultancy position with the Graphics & Multimedia group at Microsoft's research lab in Cambridge. Helping to build the next generation of head mounted displays.

### R&D INTERN - OLM DIGITAL

SEP-DEC 2019

Three month internship with the R&D group at OLM Digital animation studio in Tokyo building in-house tooling for their 3D animation and visual effects pipelines. Primarily developing custom modelling tools for Autodesk Maya.

### RESEARCH CONSULTANT - MICROSOFT

MAY-AUG 2019

Three months with the Cognition research and development team based at Microsoft's lab in Cambridge, working on application of machine learning to problems in computer graphics and vision.

### RESEARCH ASSISTANT - COMPUTATIONAL MEDIA INNOVATION CENTRE

JAN-APR 2019

Three month RA position at the CMIC, Victoria University of Wellington in New Zealand, working with researchers and industry partners. Independent project work on computer vision techniques for omnidirectional stereoscopic video and its application to immersive mixed reality experiences.

### RESEARCH INTERN - MICROSOFT RESEARCH

JUL-DEC 2018

Six month internship at Microsoft Research in Cambridge working on near-eye holographic display technologies for mixed reality. Development of hologram design algorithms and prototyping of holographic display systems, contributed to two patents relating to holographic and near-eye displays.

### INTERN - CYDAR

SUMMER 2017

Two month internship working at Cydar in Cambridge, helping to develop imaging technologies for surgeons to use in the OR. Software development work focussing on web-based technologies and user interaction.

### INTERN - JAGEX GAME STUDIOS

SUMMER 2016

Three month internship within the web team at Jagex, focussed on projects involving the exploration of potential future business opportunities. Working as part of a small team to develop prototype web-based software.

## EDUCATION

### TRINITY HALL, UNIVERSITY OF CAMBRIDGE

2014-2018

MEng (distinction - 87%) in computer science

Research focussed masters involving lectures as well as independent research projects and a thesis. Courses: Affective Computing, Computer Vision, Probabilistic Machine Learning, Advanced topics in mobile and sensor systems and data modelling and Interaction with machine learning. My thesis was looking at facial alignment, involving application of machine learning to computer vision.

BA (first class) in computer science

Diverse three year course covering topics ranging from physics and computer hardware design to machine learning and human computer interaction.

## SKILLS

- Programming in Python, Julia, C/C++, C#, MATLAB, CUDA, G/HLSL and others.
- Application of machine learning using tools such as SciKit, Keras, (Py)Torch, OpenCV and TensorFlow, primarily in the context of computer vision.
- Using and developing for the 3D modelling applications Blender and Autodesk Maya.
- Knowledge of optics and holography and experience working in optical labs.
- Source code management using Git and SVN.
- Deploying software to a number of platforms including Windows, iOS and Android devices.
- Using HTML/CSS, PHP and JavaScript in the production of websites, including use of frameworks such as React, Angular, Bootstrap and Foundation.
- Graphical design experience including UI, UX and icon design using Adobe Photoshop.
- Database management using SQL.
- Proficient user of Mac OS, Linux and Windows operating systems.
- Extensive experience with Microsoft Excel, as well as word processing including use of  $\text{\LaTeX}$ .

## RESEARCH

FAKE IT TILL YOU MAKE IT: FACE ANALYSIS IN THE WILD USING SYNTHETIC DATA ALONE

E. Wood, T. Baltrušaitis, C. Hewitt, S. Dziadzio, M. Johnson, V. Estellers, T. Cashman, and J. Shotton - Microsoft 2021

A HIGH FIDELITY SYNTHETIC FACE FRAMEWORK FOR COMPUTER VISION

T. Baltrušaitis, E. Wood, V. Estellers, C. Hewitt, S. Dziadzio, M. Kowalski, M. Johnson, T. Cashman, and J. Shotton - Microsoft 2020

NEAR-EYE PERIPHERAL DISPLAY DEVICE

A. Georgiou, J. Kollin, B. Kress, A. Lunardi, S. Rehman and C. Hewitt - Microsoft, 2019

HOLOGRAPHIC IMAGE GENERATED BASED ON EYE POSITION

Andreas Georgiou, Joel Kollin, Charlie Hewitt and Niel Emerton - Microsoft, 2019

POSE-INFORMED FACE ALIGNMENT FOR EXTREME HEAD POSE VARIATIONS IN ANIMALS

Charlie Hewitt, Marwa Mahmoud - Affective Computing & Intelligent Interaction 2019

ASSESSING PUBLIC PERCEPTION OF SELF-DRIVING CARS: THE AUTONOMOUS VEHICLE ACCEPTANCE MODEL

Charlie Hewitt, Ioannis Politis, Theo Amanatidis, Advait Sarkar - Intelligent User Interfaces 2019

HEAD POSE ESTIMATION AND FACIAL LANDMARK LOCALISATION FOR ANIMALS

Masters Dissertation - Supervised by Marwa Mahmoud - University of Cambridge 2018

PROCEDURAL GENERATION OF TREE MODELS FOR USE IN COMPUTER GRAPHICS

Undergraduate Dissertation - Supervised by Gyorgy Denes - University of Cambridge 2017

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