

CHARLIE HEWITT

Curriculum Vitae

16 Perowne Street  
Cambridge  
United Kingdom  
CB1 2AY

+44 7463 757345  
charlie@thehewitts.biz  
chewitt.me

## PROFILE

I'm a 23 year old computer scientist based in the UK. I recently graduated with a master's degree in computer science from the University of Cambridge and am hoping to pursue a career in research. I'm particularly interested in graphics, computer vision, human-computer interaction and machine learning. A portfolio of my recent work is available at [chewitt.me](http://chewitt.me).

## SKILLS

- Programming in Python, C#, C/C++, Java, MATLAB, Objective-C, Swift and SML/OCaml.
- Application of machine learning using tools such as SciKit, Keras, Torch and TensorFlow, primarily in the context of computer vision.
- 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.
- Source code management using Git.
- OpenGL shader programming in GLSL.
- Database management using SQL.
- Knowledge of holography and experience working in optical labs.
- Graphical design experience including UI, UX and icon design using Adobe Photoshop.
- Proficient user of Mac OS, Linux and Windows operating systems.
- Extensive experience with Microsoft Excel, as well as word processing including use of  $\text{\LaTeX}$ .

## EXPERIENCE

### RESEARCH ASSISTANT - COMPUTATIONAL MEDIA INNOVATION CENTRE - 2019

Three month RA position at the CMIC, Victoria University of Wellington in New Zealand, working with researchers and industry partners to help develop innovative mixed reality technologies.

### RESEARCH INTERN - MICROSOFT RESEARCH - 2018

Six month internship at Microsoft Research in Cambridge, working with a small team to develop near-eye holographic display technologies for mixed reality.

### INTERN - CYDAR - SUMMER 2017

Two month internship working at Cydar in Cambridge, helping to develop imaging technologies for surgeons to use in the OR.

### INTERN - JAGEX GAME STUDIOS - SUMMER 2016

Three month internship within the web team at Jagex, focussed on projects involving the prototyping and development of potential future business opportunities.

### WEBMASTER - TRINITY HALL BOAT CLUB - 2014-2017

Maintaining and updating the club website ([trinityhallbc.co.uk](http://trinityhallbc.co.uk)), including complete website redesign, mobile compatibility update and implementation of online captaincy election system.

## RESEARCH

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

*Charlie Hewitt, Ioannis Politis, Theo Amanatidis, Advait Sarkar - Intelligent User Interfaces 2019 (in print)*

Paper introducing the Autonomous Vehicle Acceptance Model (AVAM), a model of user acceptance for autonomous vehicles, adapted from existing models of user acceptance for generic technologies. The AVAM questionnaire is used to assess current public perception of autonomous cars, with the model and questionnaire results intended to enable meaningful comparison between future studies of autonomous vehicles.

### SHAPE-ONLY FEATURES FOR PLANT LEAF IDENTIFICATION

*Charlie Hewitt, Marwa Mahmoud - 2018*

Paper presenting a novel feature set for shape-only leaf identification from images based on spectral analysis of Local Area Integral Invariants. Over 90% accuracy is achieved on all but one public dataset, with top-four accuracy for these datasets over 98%.

### CNN-BASED FACIAL AFFECT ANALYSIS ON MOBILE DEVICES

*Charlie Hewitt, Hatice Gunes - 2018*

Paper focussing on the design, deployment and evaluation of Convolutional Neural Network (CNN) architectures for facial affect analysis on mobile devices. The proposed architectures equal the dataset baseline while minimising storage requirements. A user study demonstrates the feasibility of deploying the models for real-world applications.

### CONFIDENCE MEASURES FOR CNN CLASSIFICATION USING GAUSSIAN PROCESSES

2018

Paper presenting a hybrid classification technique using Gaussian processes fitted on features extracted by a convolutional neural network to enable estimation of prediction confidence. The classifier is evaluated on the MNIST dataset and shown to have somewhat meaningful implications for confidence estimation.

### PROCEDURAL GENERATION OF TREE MODELS FOR USE IN COMPUTER GRAPHICS

2017

Project and associated dissertation produced for part II of the Cambridge BA course evaluating the effectiveness of Lindenmeyer-Systems and a fully parametric approach in producing realistic 3D models of trees for CGI. Implemented two systems in python for use with Blender, as well as an investigation of automatic design using genetic algorithms.

## EDUCATION

TRINITY HALL, UNIVERSITY OF CAMBRIDGE - 2014-2018

MEng (distinction - 87%) in computer science

BA (first class) in computer science

JOHN HAMPDEN GRAMMAR SCHOOL - 2007-14

A Level

- A\* in Mathematics, Further Mathematics and Chemistry
- A in Physics

AS Level

- A in Mathematics, Further Mathematics, Chemistry, Physics and Geography

Cambridge iGCSE

- A\* in Mathematics

GCSE

- A\* in Mathematics, Physics, Chemistry, Biology, Music, Industrial Technology, Geography, English Literature, French, Religious Studies (half course) and ICT (half course)
- B in English Language

## REFERENCES

Dr Andreas Georgiou  
Researcher  
Microsoft Research  
21 Station Road  
Cambridge  
CB1 2FB  
angeor@microsoft.com

Prof. Simon Moore  
Director of Studies, Computer Science  
Trinity Hall  
Trinity Lane  
Cambridge  
CB2 1TJ  
simon.moore@cl.cam.ac.uk