A Final Year PhD Student at Coventry University studying Deep Learning for Invariant Object recognition. Looking for a position starting October 2017.

ERIK BARROW

COMPUTER SCIENTIST

Please find attached a copy of my business card

ERIK BARROW

COMPUTER SCIENTIST

Hi. My Name is Erik Barrow. I am a Computer Scientist who works in the field of Artificial intelligence and Deep Learning. I love programming and working with neural networks, and currently get to work with both of these passions at Coventry University where I am completing my PhD.

I am looking for a position starting October 2017 when my PhD is scheduled to finish. Please find enclosed in this booklet a variety of information about me and my work, and please feel free to email me with any questions or queries.

SUMMARY

Computer Science Graduate and PhD Student skilled in computer programming and artificial intelligence with a First Class Bachelors degree. I have multiple conference publications and am capable of working in a team with proven leadership skills. I am hard-working, organised, and an independent learner, who is determined to seek the best possible and most appropriate solution to a given problem.

Professional Memberships

British Computing Society
Asia Pacific Neural Network Society
IEEE - Computational Intelligence Society

Other Qualifications

MiDAS - Minibus Driver Awarness Scheme
MCTS - Configuring Windows Server 2008 : Network Infrastructure

Education

2014-2017

Coventry University - Doctor of Philosophy

I am currently undertaking a PhD at Coventry University in the field of Computer Science and Artificial Intelligence. In particular, my PhD looks at invariance in object recognition and how the problem might be solved using Deep Artificial Neural Networks.

2011-2014

Coventry University - Computer Scince (BSc) Hons

I studied Computer Science at Coventry University and obtained a First Class Degree. During my time at the University, I was a member of the Computer Club and took part in the yearly New Wizards showcase.

2003-2011

Hugh Christie Technology College - A Levels - GCSE

Hugh Christie Technology College was the secondary school that I attended and completed my GCSE's and A Levels at. During my time at Hugh Christie, I got the opportunity to work as a Head Boy, and as a Lunch Time Monitor. The school also gave me contacts though the student council to take up a term as a member of the Kent Youth County Council.
A-Levels: ICT, Computing, Diploma for IT Professionals (iPro), Product Design
GCSE: Maths, Science (Double), English Language, English Literature, Electronics, ICT, History

2008-2011

Open University

While studying for A Levels, I undertook some Open University level 1 modules through a scheme on offer at my school that allowed sixth formers to study a number of OU modules for free. These modules include:
TU120 - Beyond Google: working with information online
T155 - Linux: an introduction
TM128 - Microsoft server technologies

Work Experience

Coventry University | 2014-2017

Over the period of my PhD I have worked as the equivalent of an **Assistant Lecturer** for Coventry University for up to 6 hours a week.

My role involved me in teaching first year programming and activity led learning labs/tutorials, and marking student work.

Coventry University | 2012-2017

Since part way though my first year at Coventry University I have been a **Student Advocate**.

As a student advocate I have helped the University with a multitude of tasks from helping run open days and other events, to assisting the marketing department.

Coventry University | 2012-2014

During my Second and Third years of my Undergraduate degree I worked as a **Student Proctor**.

As a student proctor I assisted staff in lab sessions for first year programming.

Testimonials

I've worked with Erik for over two years, finding him to be professional and passionate in both his teaching and research. The events he's organised, that I have attended, have been highly professional and a credit to his organisational skills and initiative. It's been my pleasure to work with him, in my opinion he's been a real asset to the university, and I have no hesitation in making a strong recommendation for him.
Simon Billings - Coventry University

Over the last 5 years that I have known Erik Barrow he has proved to be one of the most diligent and supportive student advocates that I have had the pleasure to work with. No task or request is too much trouble and they are always carried out perfectly first time without need for further support or correction. I am sure that whatever field Erik decides to work in he will be a huge asset to that company.
Ian Bowker - Coventry University

PROFESSIONAL SKILLS

Programming

Research

Neural Networks

Web Development

C++

Python

HTML/CSS

MatLab

PHP

SQL / Databases

PERSONAL SKILLS

Teamwork

Problem Solving

Organization

Communication

ABOUT ME

I am computer programmer at heart and have a great interest in artificial intelligence and new technology. I have had an interest in Computer Science since a young age thanks to growing up in a technological family.

I am currently based in Coventry for my Post Graduate degree studies, but have a more permanent base in Edenbridge, Kent. When I am not at university I enjoy taking part in a number of interests and hobbies that you can find in the section below.

I enjoy travelling the world and seeing new places, usually though research conferences or my ties to scouting.

INTERESTS & HOBBIES

I have a variety interests and hobbies that I enjoy partaking in during my free time. One of my biggest hobbies is Scouting, and I have been a part of the scout movement since the age of 6. Scouts has given me a wide range of life skills and has enabled be to travel to different parts of the world and to take on new challenges.

I also have a big interest in Japan and its culture. Especially in Anime, where I have taken part in and helped run my university's Anime and Manga society. I have had the privilege of visiting Japan twice so far in my lifetime.

I also took part in and ran another society at my university for Salsa dancing. I enjoy the social aspect of Salsa Dancing and getting to learn new dance moves and tricks.

Another Hobby of mine is being a YouTuber. I record and make videos for my YouTube channel "HyperTora", where I unbox and review subscription boxes from around the world.

MY
PUBLICATIONS

I have published several papers during my time as a PhD student. Please find details of these papers to the right hand side of the page.

You can download and read these papers on my website, as well as find unpublished papers and my undergraduate dissertation.

https://erikbarrow.com/publications/

Selective Dropout for Deep Neural Networks (2016)
E Barrow, M Eastwood, C Jayne
Neural Information Processing 9949, 519-528

Deep Dropout Artificial Neural Networks for Recognising Digits and Characters in Natural Images (2015)
E Barrow, C Jayne, M Eastwood
Neural Information Processing 9492, 29-37

MY AWARDS &
ACHIEVEMENTS

I have achieved a variety of awards and achievements both in university and outside university through scouting.

I have displayed some of my most notable achievements to the right hand side of this page, and you can find more information on my website.

Summited Mt Kilimanjaro/ 2012

Summited Mt Fuji / 2015

Best CEM Presentation/ 2017

Explorer Belt / 2014

Best Special Interest Society / 2017

Portfolio

For the last three years I have been working on my PhD at Coventry University. The title of my PhD is "The use of Deep Learning to solve Invariance Issues associated with Object recognition in Computer Vision". My research has led me to using MATLAB and the Deep Learning Framework "Caffe" extensively for my research. This has built even more on my programming skills in C++ and the MATLAB scripting language.

```cpp
vector< vector<Blob<Dtype>*> > weight_diff_vector(size + 1, vector<Blob<Dtype>*>(2));

Blob<Dtype>* tempTopPoint = top[0];
Blob<Dtype>* tempBottomPoint = bottom[0];

//create copies of top and bottom for each network to use
for (int n = 0; n < size; ++n){
    bottomvector[n][0] = new Blob<Dtype>(1, 1, 1, 1);
    topvector[n][0] = new Blob<Dtype>(1, 1, 1, 1);
    weight_diff_vector[n][0] = new Blob<Dtype>(1, 1, 1, 1);
    weight_diff_vector[n][1] = new Blob<Dtype>(1, 1, 1, 1);

    bottomvector[n][0]->CopyFrom(*tempBottomPoint, 0, 1);
    topvector[n][0]->CopyFrom(*tempTopPoint, 1, 1);
}


//alter propagation //based on winning neurons
Dtype* Winners = winnersaveBlob_->mutable_cpu_data();
//for each layer
for (int n = 0; n < size; ++n){
    Dtype* currentLay = topvector[n][0]->mutable_cpu_diff();
    //loop winning array
    for (int j = 0; j < (topvector[0][0]->shape(0) * topvector[0][
        //zero loosing deltas
        if (n != Winners[j]){
            currentLay[j] = 0;
        }
    }
}


//perform backward prop
#pragma omp parallel for
for (int n = 0; n < size; ++n){
    this->Conv_Layers_[n]->Backward(topvector[n], propagate_down, bottomvector[n]);  //split blobs for each parallel layer
}
```

Research

I am working on Convolutional Neural Networks, and am working to make them invariant to rotation by working with altered convolutional filters. This has led me to directly altering code in the Caffe Framework for the purpose of my research.

www.erikbarrow.com | erik@erikbarrow.com

Work on this page is an example of some projects and coursework that I have taken part in and worked on during my time at Coventry University. More information about these projects can be found on my online portfolio at https://erikbarrow.com/portfolio/

New Wizards Website

WordPress website for a Coventry University Showcase to advertise and register event tickets.
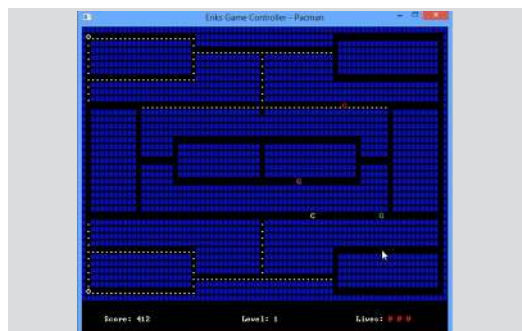

OneCall Plumbing Website

WordPress website for a plumbing client updated from a hardcoded web 1.0 html website.
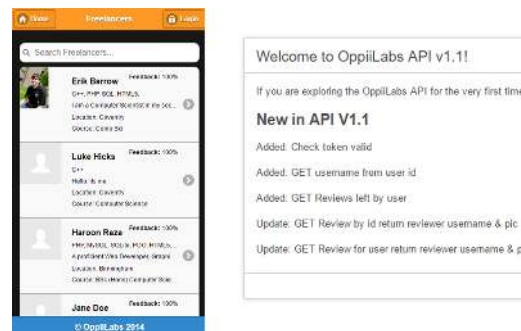

OPPII Labs Website

Second year (Undergraduate) website development module. Freelancing site for students.

ASCII Pacman & Snake

First year (Undergraduate) programming project. ASCII game made in C++ using OOP.

Oppii Labs API & Mobile Dev

Third year (Undergraduate) API and Mobile web development module.

Kilimanjaro

As mentioned in my achievements, I summited Mt Kilimanjaro in 2012 with Kent Scouts, and raising money for Cancer Research.

Volunteering

During my lifetime I have undertaken a number of volunteering projects and activities. These activities have spanned from my time at Secondary School all the way through my Undergraduate degree and my Post Graduate degree. I thoroughly enjoy volunteering and being involved with these projects, as well as getting the opportunity to give something back to the community that I have learnt so much from.

World Scout Jamboree 2011 & 2015

Scouting is one of my favourite hobbies. In 2011 and 2015 I volunteered as a member of the International Service Team at two World Scout Jamborees. The Jamborees took place in Sweden (2011) and Japan (2015), where I got the opportunity to work on a subcamp award team in Sweden and the IT department in Japan.

President BCS Coventry Student Chapter

Also known at Coventry University as the "Computer Club". I have been involved with the club since it was founded in 2011 and took on a role helping to organise the club. In 2015 I led the club into becoming a BCS student chapter for Coventry and became the chapter President.

Coventry University Computer Club Hackathon 2016 & 2017

In 2016 I launched Coventry Universities first ever 24 Hour Hackathon partnered with Major League Hacking. The Hackathon was open to not only Coventry students but also University students from around the UK. I was involved in all aspects of organisation from obtaining permission, obtaining sponsorship, and running the event.

As you can see below I have volunteered though out my PhD for a number of University Societies as a member of the committee running each society. I have also helped to run some university based events such as "New Wizards" which is an employability event for students and companies to network. During my time at Hugh Christie I sat on the Kent Youth County Council, and in sixth form was Head Boy for year 7 students, managed the sixth form website, sat on the student council, was a member of the prom committee, and was a student peer mentor for year 7 students.

New Wizards

For 2 years I have volunteered for New Wizards, helping to organise a yearly computing showcase.

Assistant Scout Leader

When not at University I have volunteered as a scout leader.

President Anime and Manga

I took over the Anime and Manga Society in 2016 as president leading the society to new heights.

President Salsa Society

I spent 2 years as the president of the Salsa society from 2015.

Treasurer Salsa Society

As one of the founding comitiee members for Salsa I spent a year as the treasurer from 2014.

Kent Youth County Council

A two year term from 2008 where I sat on the Youth Council for Kent.

Get In Touch

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- Youtube.com/hypertora
- Twitter.com/ErikBarrow
- Linkedin.com/in/erikbarrow/