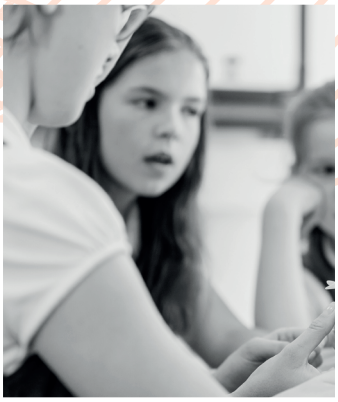

FESTIVAL OF COMPUTING

A COLLABORATION BETWEEN THE UNIVERSITY OF PLYMOUTH AND COMPUTING AT SCHOOL

UNIVERSITY OF PLYMOUTH

Computing at School

FESTIVAL OF COMPUTING

A COLLABORATION BETWEEN THE UNIVERSITY OF PLYMOUTH AND COMPUTING AT SCHOOL

Welcome to Plymouth Festival of Computing.

A three track festival for Primary andSecondary teachers and a student track for GCSE and A-level students. We are at a time when most things in the world are driven by technology, this festival aims to support teachers with CPD needs, provide teaching information and inspiration and to enthuse students with ideas around careers in tech and some of the subject areas they can study at the University of Plymouth.

This festival is a collaboration between the University of Plymouth and Computing at School. Our keynote this year is Julia Adamson from BCS-The Chartered Institute for IT. We hope that you have an enjoyable day at this our first online digital festival.

Thanks

Beverly and Shirley

Now for some info about us.....

BEVERLY

NATIONAL COMMUNITY MANAGER
COMPUTING AT SCHOOL

Beverly was formerly a Director of Computing/Secondary school.

Some of her recent achievements have been giving evidence to the House of Lords – All Party Parliamentary Group on Artificial Intelligence and being the BCS nominee, for the Women in Engineering Society - Karen Burt Award

Her first book is Computer Science Teacher – an insight into the Computing classroom she is also the founder of www.AIinSchools.com and author of the following K-12 curriculum on AI -

http://www.exploringcs.org/forteachers-districts/artificial-intelligence

@msbclarke @compatsch

DR SHIRLEY ATKINSON

ASSOCIATE HEAD FOR COMPUTING AT UNIVERSITY OF PLYMOUTH.

Dr Shirley Atkinson is the Associate Head for Computing at University of Plymouth. Her research field is in E-Safety and she has worked alongside Becta, South West Grid for Learning and the Plymouth E-Safety sub-group over the last ten years. She continues to supervise PhD students in this field along with her other interests in pedagogy and software engineering.

Shirley has been a Programme Manager for 11 years, looking after various programmes in the Computing field and has the role of Associate Head of Computing in the School of Computing, Electronics and Mathematics. Shirley's lecturing builds upon her years of industry experience, teaching programming in C#, ASP.NET, and PHP, Project Management and Data application development.

During the last seven years, Shirley has been a keen supporter of the Computing at School network and the grass roots drive to support Computing teachers.

KEYNOTE SPEAKER -

JULIA ADAMSON

(B ED. HONS.)DIRECTOR OF EDUCATION, BCS, THE CHARTERED INSTITUTE FOR IT

Once a teacher herself, Julia has a track record of successfully managing education technology programmes and was involved in establishing Barefoot Computing across the UK. Julia leads the work of the BCS Academy of Computing including Computing at School and is part of the team implementing the National Centre for Computing Education.

Julialives and has worked extensively in the SW, leading SWGfL Merlin, and is a Director at Uffculme Multi Academy Trust.

@adamsonjulia @compatsch

PRIMARY TEACHER STRAND

SARAH ZAMAN

BAREFOOT COMPUTING

Barefoot Computing and how it can support primary teachers in the classroom

WHAT YOU WILL GAIN FROM THE SESSION:
You will find out about the range of resources and support Barefoot Computing offers and how to access these resources

Speaker bio: Sarah Zaman is a primary school teacher of over twenty years who has always had a passion for computing.

She now works as part of a team of Community Outreach Managers for Computing at School, working hard to increase teacher support networks in computing in the North East and Yorkshire. She also volunteers as a Barefoot Ambassador supporting primary schools with computing through workshops on computational thinking and programming.

@CASNorth_land

CAS COMMUNITIES - MICROBIT & GOBUBBLE

PRESENTED BY COMPUTING AT SCHOOL (CAS)

WHAT YOU WILL GAIN FROM THE SESSION:

In this session you will get an overview of CAS Communities of Practice, how they dock into the National Centre for Computing Education (NCCE) and how CAS can support you in your teaching career.

There will also be demonstrations of the BBC Microbit and how it can be used in the classroom along withOnline Safety by GoBubble

SPEAKER BIO:

CAS is a grassroots community of people, passionate about Computing and working together to support teachers and ensure that every child has a world leading computing education - https://www.computingatschool.org.uk/

@compatsch

MICROBIT

CROSS-CURRICULAR PRIMARY COMPUTING WITH THE BBC MICRO:BIT'

- Why physical computing excites primary students and grows teacher confidence
- Introduction to the 'CAS in a Box' resource: Adapting computing lessons for blended learning and supporting parents with easy-to-follow coding guides
- Introduction to block-based coding with the MakeCode simulator and organising student's code activities with the free micro:bit classroom tool
- Introduction to the do your :bit challenge - a global challenge for 8 - 18 year olds - designed for blended learning - with resources and lessons on the Global Goals and prototyping activities using tech for good.

https://microbit.org

@microbit_edu

https://www.facebook.com/microbitfoundation

HENRY PLATTEN

GOBUBBLE

PRESENTER BIO:

Henry's drive for making the internet safer for kids has taken him from being a Police Sergeant, to creating the multi-award winning eCadet education program (that has benefitted 1 million children since its launch) and onto creating GoBubble , a safer, healthier and kinder digital community for kids.

More than 3500 schools in 70 countries are registered for GoBubble. School leaders and parents have seen a dramatic increase in children's positive

mental health from using GoBubble, as well as stopping them from using mainstream platforms like SnapChat, Instagram and TikTok.

All content in GoBubble is automatically checked before it appears, saving teacher time and creating a safer kid-centered environment with wellbeing as the core.

SUMMARY OF SESSION:

Find out more about the GoBubble platform, which provides a free and safer way for your pupils to connect online.

@joinbubble

MARK WILLIAMS,

PRIMARY LEAD CORNWALL & PLYMOUTH COMPUTING HUB

NCCE TEACH COMPUTING AND COMPUTER HUB PROGRAMME

SUMMARY OF THE SESSION:

This session will cover the support available to primary schools in delivering Computing and Computer Science at Key Stages 1 & 2 via the NCCE Teach Computing and Computing Hub programme.

This session will introduce you to what support, resources are available to you from the Computing Hub that covers Cornwall, Plymouth and Torridge.

WHAT YOU WILL GAINFROM THE SESSION:

- What is the Teach Computing programme and what help is available to primary teachers.
- What support is available from your local NCCE Computing Hub.
- Details of CPD covering both technical and pedagogical aspects of teaching K1 and K2 computing.
- Where to find resources mapped on a lesson-by-lesson basis for KS1 and K2 computing program of study.

SPEAKER BIO:

Mark entered teaching in 1999; upon completing an undergraduate degree in Mechanical Engineering and Design he gained a Secondary Education PGCE in Information Technology.

Mark's first teaching post was in an 11-16 secondary school teaching IT and DT, from there he moved on to teach in other 11 – 16 and 16+ educational environments teaching a combination of IT, Computing, DT, Engineering and Mathematics.

In each of these roles Mark had a keen interest in the transition between key stages of pupils and students in Computing & IT and held the role of both primary and post-16 liaison for the secondary schools he worked in.

Mark is currently the Primary Lead for the NCCE Computing Hub that covers Cornwall, Plymouth and Torridge and also lectures in Computer Science at Truro and Penwith College.

@NCCEcornwallplym

SAM ANSELL

STEM AMBASSADORS
CSW

Get an update on the STEM Ambassador programme, its remit and impact and hear directly from a STEM Ambassador as to what they can bring to the classroom.

WHAT YOU WILL GAIN FROM THE SESSION: BY THE END OF THE SESSION YOU WILL:

1. Have a greater understanding of the STEM Ambassador programme
2. Know the ways in which a STEM Ambassador can support you
3. Have a practical example of STEM activity in action

SPEAKER BIO:
Sam is an experienced project manager , trainer and communicator with over 20 years of experience working with educators, young people and volunteers.

She has worked for CSW Group for over 19 years in a variety of roles including careers education consultancy for schools, employer engagement and since 2014 as STEM Manager leading on their STEM related contracts.

@STEMHub_SWest

GILES HILL

EDTECH STRATEGY FOR PRIMARY SCHOOLS: BEYOND COVID

WHAT YOU WILL GAIN FROM THE SESSION:

- A set of key considerations for planning EdTech development in a school or schools
- Discussion around a pragmatic and realistic approach
- What will the next five years actually look like for schools?
- Q+A opportunity and illuminating product opinions
- Speaker bio: Giles and the Aspire Academy Trust have been offering ICT-based CPD to

SPEAKER BIO:
Giles and the Aspire Academy Trust have been offering ICT-based CPD to primary education staff for a number of years, most recently using the Digital Learning Cornwall badge.

Giles combines an interesting mix of skills: tech journalism; multimedia and interface design; experienced and practising classroom teacher.

He understands that schools need to be empowered to make well-informed, independent, practical choices; to implement technologies that genuinely enhance teaching and learning processes for children and staff who are not tech-specialists.

Giles spearheaded Mount Hawke Academy's successful application to be part of the first wave of DfE EdTech Demonstrator Schools

@DLCornwall

STUDENT STRAND

PIPPA WALLER AND PLYMOUTH STUDENT ALUMNI

WHAT YOU WILL GAIN FROM THIS SESSION:
Get some of the answers to these questions, hear about the possibilities open to you with a Computing degree and get some top tips from former Computing students alongside our Careers Consultant, Pippa Waller

@plymuni

RORY HOPCRAFT AND CYBERFIRST

CRYPTOGRAPHY CRACKING THE CODE (LECTURE)

CYBER DEFENSE AGAINST THE DARK ARTS

SUMMARY OF THE LECTURE:
In the digital age cryptography is an important part of ensuring that our data remains safe online. This session will start by introducing the key themes in cryptography, before moving on to explore the rich history of cryptography, paying particular attention to the 'Cracking the Enigma Code' during WWII. The session will then discuss how modern cryptography has been developed, and the role it now plays in ensuring the security of cyberspace.

The session will conclude by exploring examples of what happens when cryptography fails, and the real-world impacts that this can have. This session aims to provide you with the key required to unlock the world of cryptography, and understand the important role that cryptography continues to play in cybersecurity.

Speaker bio (lecture): Rory Hopcraft is a Research Fellow within the Maritime Cyber Threats research group at the University of Plymouth. He has a background in geopolitics, with his own research exploring the international governance of maritime cybersecurity.

He iscurrently working on the EU Horizon 2020 CyberMAR Project, helping to develop various cyber-awareness training materials.

SUMMARY OF THE SESSION:
(Cyberfirst): Staying ahead of the hackers in a digital world is difficult enough. But how could anyone get a job in keeping other people safe too?

There are so many options, so learning that ones that are the best fit are difficult. But don't despair, CyberFirst has lots of opportunities to help you navigate these difficult choices.

Listen to this talk to learn a little more about how an intelligence agency is helping students find their hidden cyber powers.

WHAT YOU WILL GAIN FROM THE SESSION:

- Understand the courses and opportunities that there are under the CyberFirst brand
- Learn about the money we give to undergraduates via our CyberFirst bursary student development programme
- Or how to become a CyberFirst degree apprentice

SPEAKER BIO:
Patrick is the CyberFirst Education Lead for the NCSC. He has had a variety of roles, primarily in protecting the UK from criminals and those who wish us harm.

Although he is a frustrated graphic designer really, he has done lots of technical things too! And a real secret, he never learned to program either.

That means he reallycan tell you that there is a technical opportunity for people of all backgrounds. Even art. Who knew?

@plymuni and @NCSC #CyberFirst

MARCO PALOMINO

LECTURER IN INFORMATION SYSTEMS AND BIG DATA

IF ROMEO AND JULIET WERE FRIENDS ON FACEBOOK

SUMMARY OF THE SESSION:
Computer systems that make recommendations are known as recommender systems. In this session, we will introduce the basics behind recommender systems and then cover the most basic recommendation algorithms available.

WHAT YOU WILL GAIN FROM THE SESSION:

- Recognition of the subject of Big Data and the challenges it brings about.
- An understanding of the concept of recommender systems and how they work.
- Two basic algorithms for making recommendations.

SPEAKER BIO:
I am a Lecturer in Information Systems and Big Data at the University of Plymouth.

My research focuses on sentiment analysis, the process of computationally identifying and categorising opinions expressed on social media. Previously, I worked for the University of Exeter as a Research Fellow, and the University of Westminster as a Visiting

@marco_palomino

RORY HOPCRAFT (PLYMOUTH UNIVERSITY) & JULIA HUMPHRIES (QUFARO)

CRYPTOGRAPHY - CRACKING THE CODE (ACTIVITY)

DEVELOPING THE TALENT POOL VIA THE CYBEREPQ

SUMMARY OF ACTIVITY:
Dating back to Roman times, cryptography still remains as one of the fundamental elements of modern cybersecurity. In this short activity you will harness your inner spy as you try your hand at cracking the code. Using simple ciphers you will attempt to decode various messages before preparing your own coded response. The session aims to consolidate the core concepts form the earlier talk by providing an opportunity for hands on learning.

SPEAKER BIO:
Rory Hopcraft is a Research Fellow within the Maritime Cyber Threats research group at the University of Plymouth. He has a background in geopolitics, with his own research exploring the international governance of maritime cybersecurity. He is currently working on the EU Horizon 2020 CyberMAR Project, helping to develop various cyber-awareness training materials.

BRIEF SUMMARY OF THE SESSION:
Qufaro provide the UKs only EPQ in Cyber Security accredited by City and Guilds. The course is worth up to 28 UCAS points and can be completed over one or two years. Delivery is via our online platform, The Moodle with full support and guidance available for learners and teachers.

WHAT YOU WILL GAIN FROM THE SESSION:

- An understanding of the course content
- The support provided by Qufaro
- The extensive benefits of studying the CyberEPQ
- The opportunities available to develop and progress via the Qufaro Alumni Group and Mentoring Scheme

SPEAKER BIO:
Speaker bio: Julia Humphries-Tsioumi has more than 20 years of teaching experience.

She is also an experienced examiner for an exam board. As an exam coordinator, she has directed and coordinated exam registration, exam preparation and evaluated and monitored each individual project, under tight deadlines and pressure.

Julia has experience of evaluating, examining and assessing performance whilst collating and maintaining records concerning progress. She has developed strategies to maintain motivation and stable, continual performance and researched, selected and implemented new strategies.

Julia holds an MA in Political Philosophy from York University and a BA (Hons) in Humanities from Teeside University.

@QufaroCyberSec

DAVID WALKER

LECTURER IN COMPUTER SCIENCE

ARTIFICIAL INTELLIGENCE - BUILDING MACHINES THAT THINK FOR THEMSELVES

WHAT YOU WILL GAIN FROM THE SESSION:
The webinar will focus on Artificial Intelligence. You will learn what it is, where you may have used it without realising, and why it's one of the biggest challenges facing computing professionals.

You'll also hear about the positive impacts of AI on society, and find out why we need to be cautious with it. Throughout the webinar David will refer to our own teaching, as well as the University's AI research, in which we explore new ways of using AI to benefit all our futures.

SPEAKER BIO:
David Walker is a lecturer in Computer Science at the University of Plymouth, teaching a range of topics from artificial intelligence to software engineering.

He has worked professionally as a software engineer, and since 2008 has been a researcher working on a range of AI problems - from the visualisation of complex data to modelling water domestic usage and solving industrial optimisation problems.

@PlymUni

RETRO CODING:

ANNE-MARIE LANGFORD

THE NATIONAL MUSEUM OF COMPUTING

RETRO CODING: USE A BBC EMULATOR TO MAKE A GAME OF SNAKE

SUMMARY OF THE SESSION:
You will have an opportunity to use an online BBC emulator to create a game of snake. Can you code the game and get the highest score by the end of the session?

Students will need access to a laptop or PC with permission to connect to https://bbc.godbolt.org/.

A couple of worksheets will be sent out downloading and printing them in advance will help them.

WHAT YOU WILL GAIN FROM THE SESSION:

- Experience using a virtual machine and a BBC micro one of the first machines widely used in education
- Learn how to create a simple game in BBC BASIC and experience how young people coded in the 1980s

SPEAKER BIO:
Anne-Marie has worked in the Museums and Heritage Sector for around 20 years. The roles have encompassed learning with schools, families and community groups in a wide range of settings:- historic houses, multi-discipline museums, industrial heritage sites and archives. She recently created a remote learning programme for The National Museum of Computing.

@tnmoc and @ltnmoc

DR SHIRLEY ATKINSON & VIVIAN HOCKING

THE UNIVERSITY OF PLYMOUTH

CODING CHALLENGE

BRIEF SUMMARY OF THE SESSION:

In 2014 JavaScript was declared the language of the year by Tiobe index due to it not only topping the charts that year but also increasing its position in the index more than any other coding language.

In this session we will review the role of JavaScript in dynamic web pages and also thrown down a challenge for you. Take a current guessing game and make it multiplayer so you can play with people you know online!

The clock is ticking... what do you think you can do. For this challenge you will need to use notepad++ and a browser.

SPEAKER BIO:

Vivian has a keen interest in Information Security with demonstrated administration and customer facing experience. Passionate about working well with and motivating people; capable of bringing a unique tact to client interaction with the goal of encouraging business loyalty. He works at Plymouth University in information security

@PlymUni

SECONDARY TEACHER STRAND

BECCI PETERS

ISAAC COMPUTER SCIENCE

AN OVERVIEW OF ISAAC COMPUTER SCIENCE

BRIEF SUMMARY OF THE SESSION:

The session will explain what the Isaac CS platform is and how to use it as a teacher.

WHAT YOU WILL GAIN FROM THE SESSION:

- how to use Isaac CS in your lessons,
- how to set assignments for your students,
- how to engage in teacher & student events

SPEAKER BIO:

Becci has been a Computing teacher for many years. She is now an educational consultant working for Hodder, PG Online & Zigzag. Becci is also a Subject Matter Expert and CS Champion for the NCCE.

@beccipeters28

CAS COMMUNITIES

DAN POWELL

NEON - BRILLIANT ENGINEERING INSPIRATION FOR YOUR STUDENTS

SUMMARY OF THE SESSION:
In this session you will get an overview of CAS Communities of Practice, how they dock into the National Centre for Computing Education (NCCE) and how CAS can support you in your teaching career. There will also be a talk from Neon Engineering about career opportunities for your students, and The National Museum of Computing will be demonstrating a walkthrough of their remote learning resources.

BRIEF SUMMARY:
Neon brings together the UK's best engineering experiences and inspiring careers resources to help teachers bring STEM to life with real-world examples of engineering. Finding engaging activities to show where engineering is used in the real world can take time.

So, we do the hard work for you, curating the most brilliant experiences so you know they are engaging for your students, are linked to up-to-date careers information and highlight real-world applications of engineering. https://neonfutures.org.uk/

WHAT YOU WILL GAIN FROM THE SESSION:

- An understanding of what Neon is and the benefits to teachers it provides
- How to use Neon to find engaging examples of engineering careers to share with your students

SPEAKER BIO:
" As Head of Tomorrow's Engineers, my job is to develop and implement the strategic direction of TE. I work with our partners to ensure that everything we do works towards our goal of inspiring the next generation of engineers. I am also leading on the development of Neon, our exciting new digital platform. Before joining EngineeringUK I worked at The Raspberry Pi Foundation on Code Club. "

ANNE-MARIE LANGFORD

TURING TO SMARTPHONE - BUILDING YOUR STUDENTS UNDERSTANDING OF COMPUTING ATTNMOC

SUMMARY OF THE SESSION:
Teachers will get a virtual walk through of the remote learning session which includes a tour and hands on sessions and quizzes.

WHAT YOU WILL GAIN FROM THE SESSION:

- discover TNMOC collections enabling understanding of fundamental concepts in computing that are often hard to grasp from the text book
- explore how understanding history can improve understanding and attainment
- understand how a remote visit can motivate and inspire students.

SPEAKER BIO:
Anne-Marie has worked in the Museums and Heritage Sector for around 20 years. The roles have encompassed learning with schools, families and community groups in a wide range of settings:- historic houses, multi-discipline museums, industrial heritage sites and archives. She recently created a remote learning programme for The National Museum of Computing.

@tnmoc and @ltnmoc

SAM ANSELL

USING STEM AMBASSADORS TO SUPPORT CURRICULUM DELIVERY

SUMMARY:
Get an update on the STEM Ambassador programme, its remit and impact and hear directly from a STEM Ambassador as to what they can bring to the classroom.

WHAT YOU WILL GAIN FROM THE SESSION:
By the end of the session you will:

1. Have a greater understanding of the STEM Ambassador programme
2. Know the ways in which a STEM Ambassador can support you
3. Have a practical example of STEM activity in action

SPEAKER BIO:
Sam is an experienced project manager , trainer and communicator with over 20 years of experience working with educators, young people and volunteers.

She has worked for CSW Group for over 19 years in a variety of roles including careers education consultancy for schools, employer engagement and since 2014 as STEM Manager leading on their STEM related contracts.

@STEMHub_SWest

MARK WILLIAMS

NCCE TEACH COMPUTING AND COMPUTER HUB PROGRAMME

SUMMARY OF THE SESSION:
This session will cover the support available to secondary schools in delivering Computing and Computer Science at Key Stages 3 & 4 via the NCCE Teach Computing and Computing Hub programme. This session will also cover the support available for schools who do not currently offer GCSE Computer Science but would like to do so.

WHAT YOU WILL GAIN FROM THE SESSION:

- What is the Teach Computing programme and what help is available to secondary teachers fulfill the Computer Science requirements of the KS4 programme of study.
- What help, support and bursaries are available to upskill staff in teaching GCSE Computer Science
- What help, support and bursaries are available to help schools who are either struggling to maintain their GCSE Computer Science offer or do not currently offer it as an option.
- Insight into resources that are mapped on a lesson-by-lesson basis across both KS3 and KS4 programs of study are available to you right now.

SPEAKER BIO:
Mark entered teaching in 1999; upon completing an undergraduate degree in Mechanical Engineering and Design he gained a Secondary Education PGCE in Information Technology. Mark's first teaching post was in an 11-16 secondary school teaching IT and DT, from there he moved on to teach in other 11 – 16 and 16+ educational environments teaching a combination of IT, Computing, DT, Engineering and Mathematics.

In each of these roles Mark had a keen interest in the transition between key stages of pupils and students in Computing & IT and held the role of both primary and post-16 liaison for the secondary schools he worked in. Mark is currently the Primary Lead for the NCCE Computing Hub that covers Cornwall, Plymouth and Torridge and also lectures in ComputerScience at Truro and Penwith College.

@NCCEcornwallplym

CLAIRE BUCKLER

EDTECH DEMO INTRODUCTION AND TASTER WEBINAR
HOW TO RUN CS ON A CHROMEBOOK SESSION

SUMMARY OF THE SESSION:
This session will outline the free support that is available from the EdTech Demonstrator initiative and have a 30 minute taster webinar on running Computer Science on a Chromebook.

WHAT YOU WILL GAIN FROM THE SESSION:
An overview to take back to your senior leaders on the support that Edtech schools can offer and an introduction to running a CS Curriculum on a chromebook

SPEAKER BIO:
Claire has taught ICT and Computer Science for 16 years and now works at DHSB driving the whole school digital skills initiative. Claire is keen to showcase educational technology, in particular how it can be used to lessen workload.

Claire is a CPD facilitator for the NCCE and STEM, a Rpi and Google educator,Board Member for CAS and is part of the team working on the edtech demonstrator initiative.

@clairegowland

The University is committed to the promotion of equality and diversity. If you require this publication in an alternative format, please contact us on +44 (0)1752 586043.

Development Office
University of Plymouth
Drake Circus
Plymouth
Devon PL4 8AA

E: alumni@plymouth.ac.uk
plymouth.ac.uk/campaign/tamar

UNIVERSITY OF PLYMOUTH