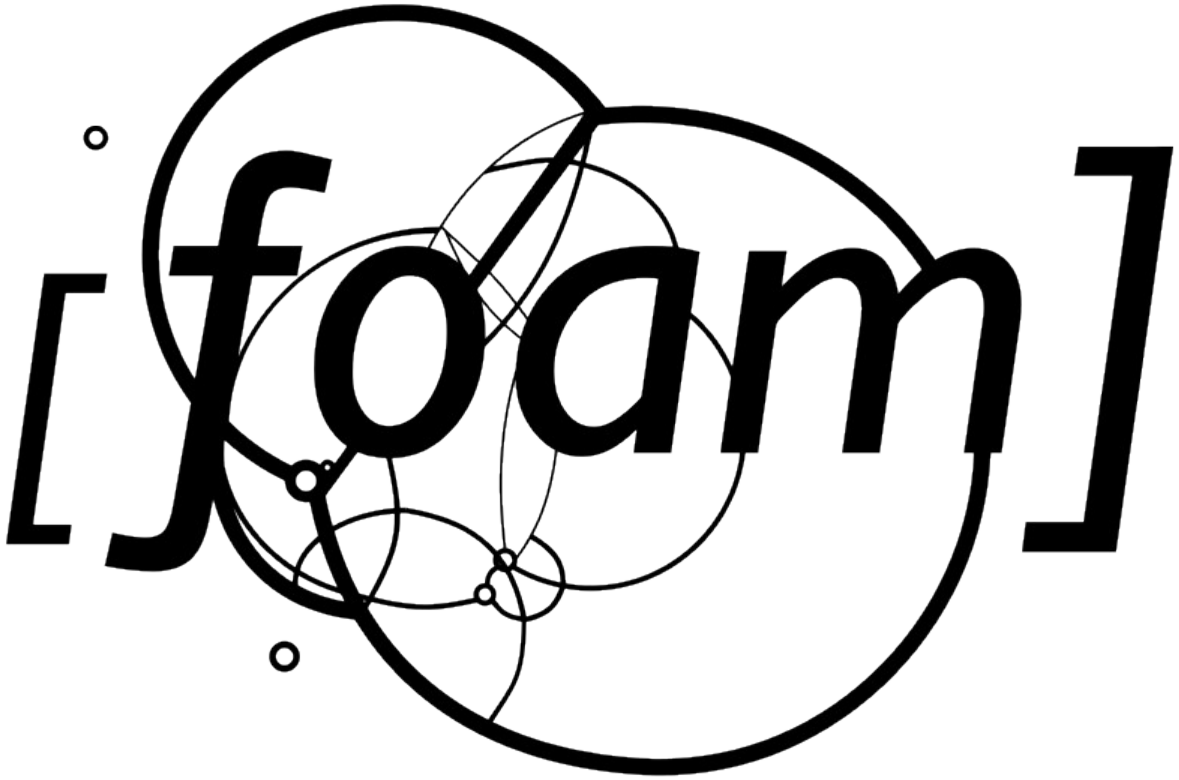


Foam Kernow's selected activities 2014-2015

http://fo.am/kernow

kernow@fo.am

Foam is a distributed network of transdisciplinary labs for speculative culture. Foam has bases and nodes (people, projects and organisations) spread across the globe, creating a flexible structure that can incubate and spawn experimental initiatives while also developing activities on larger scales. Foam Kernow is the UK base, a non-profit organisation inhabiting the spaces between arts, culture, society, research, education and policy.

One of Foam Kernow's core missions is to enable people to develop creative and confident relationships with science and technology, merging our experience in science, programming, arts and design in a broad range of transdisciplinary research and education projects.

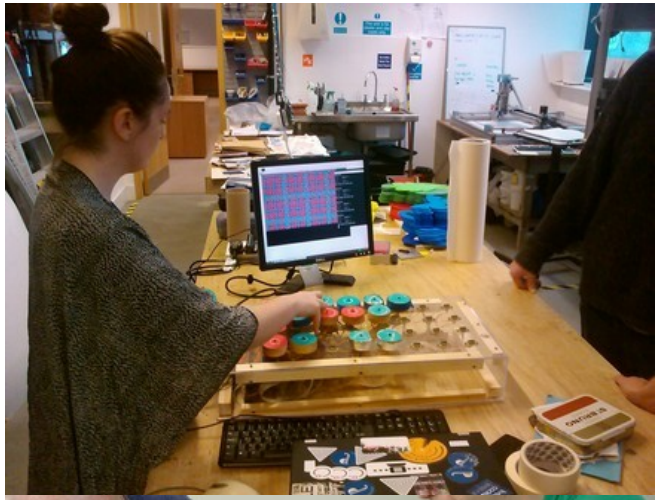
Our projects range from creating games to engage people in scientific research or explore issues surrounding online privacy and political change, to providing scientists with exciting ways to reach out and talk to people, and giving local primary school children and teenagers new ways to learn programming. Guided by our motto “grow your own worlds”, we study and prototype possible futures, while remaining firmly rooted in cultural traditions. We speculate about the future relationships between technology and culture in experiments that allow alternative perspectives to emerge. By conducting these experiments in the public sphere, we invite conversations and participation of people from diverse walks of life.

Foam Kernow's work bridging science, technology and culture has been featured in The Economist, BBC's Click programme, The Guardian and Thinking Digital and has won the Soil Association's Innovation Award 2014 and the 2011 VIDA Award. We have written for The Guardian and The Conversation on the rapid changes happening in research and education, and are committed to fostering a culture of free software, creative commons and open access through our work.

This is a selection of our activities in the last two years.

Research in the arts

Our cultural research projects explore historical and critical perspectives on technology, and allow us to generate ideas and prototypes that we can later use in commissioned work and education. These projects also allow us to foster collaborations with exciting and diverse artists and researchers.



Research in the arts

Weaving Codes, Coding Weaves (2014-2016)
http://fo.am/weaving-codes/

The weaving codes project is a collaboration between Foam, Leeds University and the Danish Centre for Textiles Research, and applies a five-thousand-year-long view of technology to programming which has allowed us to bring a discussion of what the word 'digital' means into surprising places. Our role on the project has been to examine the computational nature of weaving and develop tangible programming hardware to provide ways of coding without screens – and trialling these in schools, care homes and museums. This project is funded by the Arts and Humanities Research Council.

Museum for Plaster Casts of Classical Sculptures, Munich (2015)

A week long workshop and interactive installation as part of Ellen Harlizius-Klück's "Textile Matrix" exhibition. Surrounded by the characters of classical myth and philosophy, we developed the 'pattern matrix' device for exploring the relationship between binary data and pattern generation inspired by the weaving technologies of antiquity. Culminating in a livecoding performance by Ellen, Alex McLean and Dave Griffiths where we provided musical sonifications of ancient Greek weaving for "people looking at sculptures".

Future thinking for social living, Miners Court Extra care housing scheme, Redruth, Cornwall (2015)

A series of 'pop up workshops' working with elderly people in conjunction with Falmouth University. Using mathematics, pattern making and Raspberry Pi computers as a way of widening participation in craft workshops to male residents, while collecting insights on attitudes to technology, home and well-being by exploring future thinking techniques together.

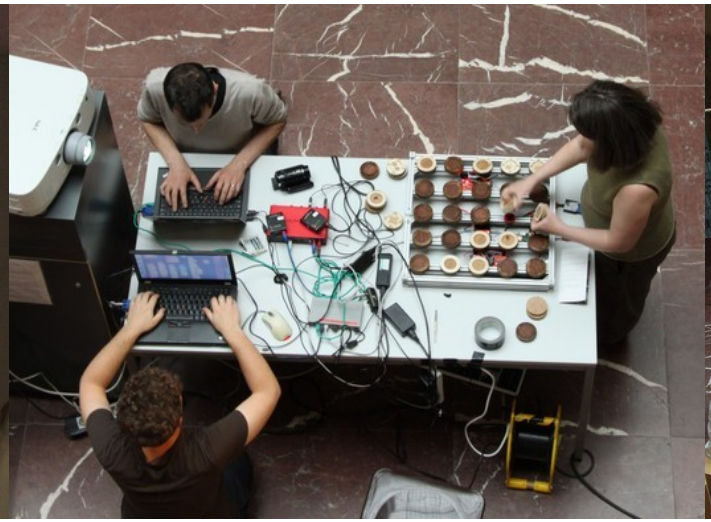
Research in the arts

Sonic Pattern and the Textility of Code 2 Code as Material, Sheffield (2015)

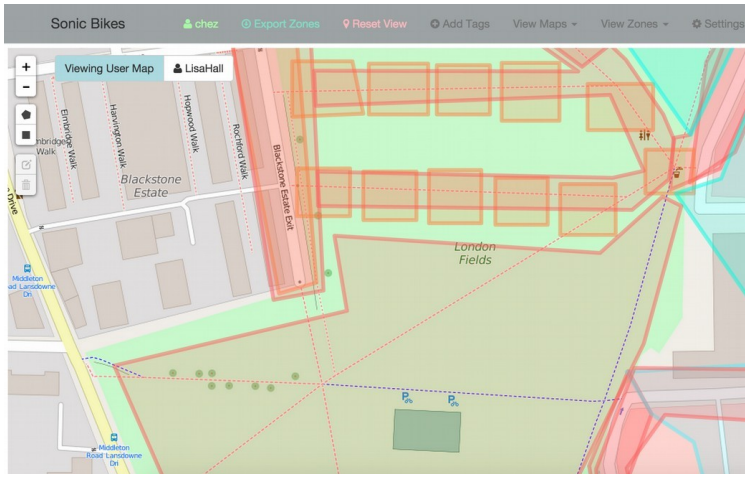
A daytime symposium and an evening of audiovisual works concerned with how sound, image and threads allow us to both sense the abstract and conceptualise the tactile. A talk by Francesca Sargent and demonstration of the pattern matrix tangible weavecoding device.

Livecoding (2003-ongoing)

Performances worldwide (Sonar festival Barcelona, VIVO festival Mexico City, STRP Eindhoven) with Alex McLean as 'slub', with coverage on BBC, Wired, and Dazed and Confused. Foam develops experimental open source software (e.g.http://www.pawfal.org/fluxus) used in workshops and by artists for coding as performance. Livecoding is a growing interdisciplinary practice, with its own emerging research. Foam Kernow is part of the Livecoding Research Network http://www.livecodenetwork.org/ and is currently involved with bringing insights from this cultural treatment of code to a wider innovative context for new projects (e.g. the “UAV toolkit”).


Research in the arts

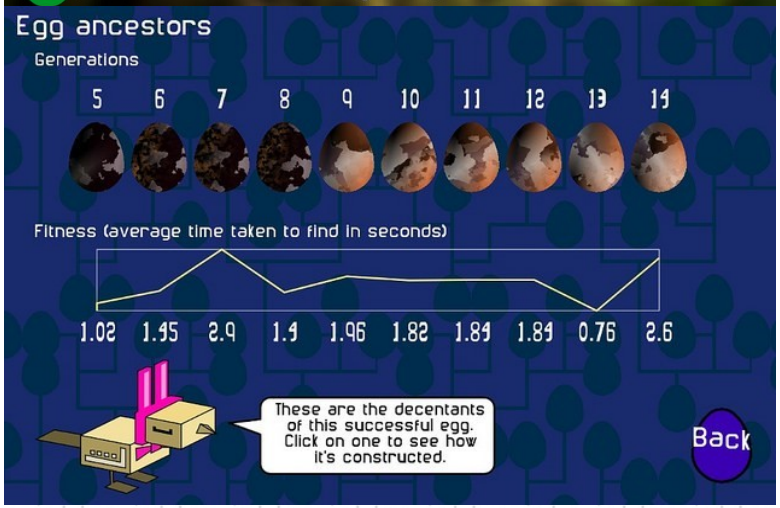


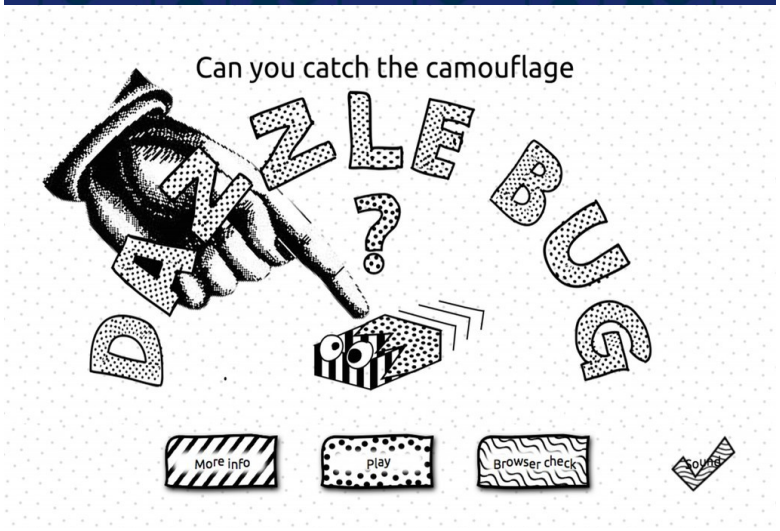
Sonic Bike Operas (2011-ongoing)
http://fo.am/bicrophonic-research-institute/

A series of public sound installations in collaboration with Kaffe Matthews. GPS enabled bikes with speakers play music as riders pass through different parts of a city. Long running public events in Ghent, Porto, Hailuto Island, Finland, Houston Texas, Brussels, London, Coventry. Foam provides sonic map drawing software (used in workshops as well as for performance production) and an on-bike audio playback system using Raspberry Pi computers and Beagleboards.

Science for citizens

One of Foam Kernow's core activities is concerned with bringing artistic expertise and practice into the service of scientific research, particularly in the area of the natural sciences.





Science for citizens

Butterfly Game (2014-2015) http://fo.am/butterfly-mimicry/

A game where you take the role of a hungry bird, and drive the evolution of an edible butterfly species to mimic the patterns of a toxic species. The game is based on genetic models used by the researchers at Cambridge University and was commissioned for use at the 2014 Royal Society Summer Exhibition in London. The game was further developed into a citizen science exhibit for the Paris Natural History Museum where it was used to collect data on pattern recognition between toxic and edible species by turning visitors into predators with a touchscreen.

Egglab (2014) http://fo.am/egglab/

Egglab is a citizen science browser game, commissioned by the University of Exeter, which evolved camouflage patterns based on the combined efforts of over 50,000 players searching for artificial eggs using backgrounds images from the nesting sites of African nightjar birds. The artificially evolved patterns can be compared with the real organisms in order to determine how camouflage has evolved in the ecosystem. Featured in the Economist and the Guardian.

Dazzlebug (2015-ongoing) http://dazzle-bug.co.uk

A commission for Cambridge University to answer questions about the evolution of camouflage pattern with respect to movement. Using an ambitious extension of same system we used for Egglab, we want to find out if zebra-like stripes evolve under the pressure of thousands of people hunting for bugs that move around the screen.

Science for citizens

Cricket tales (2014-2017)

Foam Kernow is inviting citizens to help scientists with the task of watching and identifying different events in the active lives of crickets. Hundreds of CCTV cameras record cricket behaviour and collect data in the wild around the clock for four months. This project is a commission from the University of Exeter.

Marine fisheries genetics and policy (2014-ongoing)

Most European fish stocks are being fished at unsustainable levels, and many are close to collapse. The use of science in the development of fisheries policies has undeniably improved, however despite a wealth of potentially useful research from the field of genetics there seem to be substantial barriers to its use in fisheries legislation. Through interviews and surveys with EU policy makers, NGOs, and industry actors, Foam in collaboration with social scientists Kirsten Abernethy and Rachel Turner, and geneticist Andrea Miraldo are working to establish a clear understanding of the exposure to, perceptions of, and barriers to, the use of genetic data in policy and fisheries management practice. A key area of interest is communication and design of research, and what is required for academic and professional scientists to link their research with policy design to have a greater policy impact.

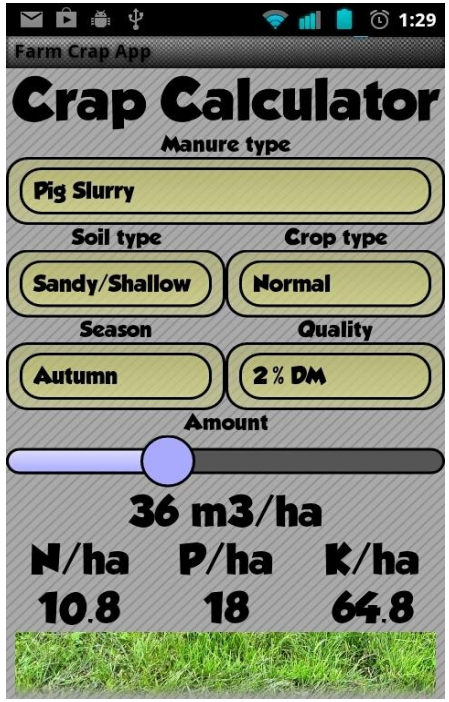
Appropriate technology

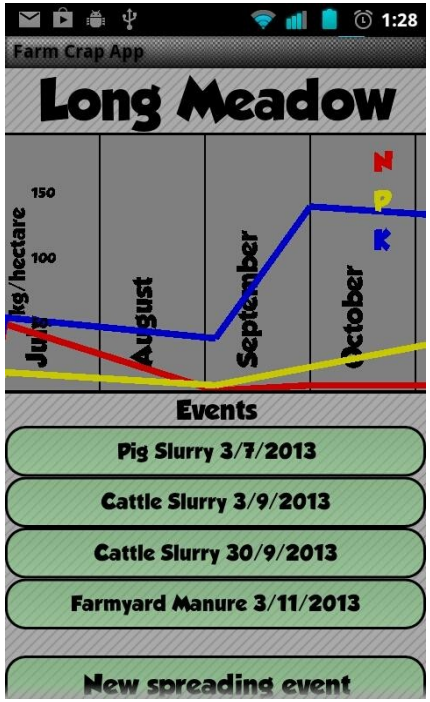
The concept of appropriate technology has been key to Foam Kernow's work - the idea of decentralized, energy-efficient, environmentally sound, and locally controlled solutions to specific problems. These projects often use specific solutions with an eye to more international issues, such as technology use in developing countries.

Appropriate technology

The Farm Crap App (2013-2016)
http://fo.am/farm-crap-app

A tool for encouraging sustainable agriculture commissioned by the Duchy College, Cornwall. An app based on DEFRA published data to promote the use of natural fertiliser. Includes recording features for farm-wide use with multiple fields, soil and crop types, camera and gallery features, emailing data for reports. The app won the Soil Association Innovation Award 2014, and is being used by farmers in the UK and internationally.





UAV toolkit (2015-ongoing)

An ongoing project with the UAV research group at the University of Exeter Environment and Sustainability Institute. We're developing commodity technology such as Android phones for environmental research with drones and kites. Ecology research groups and environmental agencies have started using drones as a replacement for expensive and risky light aircraft for gathering data on changes to landscapes due to climate change and erosion. Drawing on our livecoding research for arts projects, we are building and testing flexible tools that allow government agencies, environmental charities and farmers to create photographic maps simply and cheaply.

Appropriate technology

Mongoose 2000 (2014–ongoing)
http://fo.am/mongoose-2000/

A behavioural research tool for use in remote areas in Uganda lacking reliable internet connectivity or power. Developed for the Banded Mongoose Research Project at the University of Exeter for use at their field site, Mongoose 2000 uses a Raspberry Pi to synchronise behavioural observation data across multiple Android tablets used for daily recording of mongoose behaviour.

Symbai (2014) http://fo.am/symbai

Symbai is a project in collaboration with anthropologist Dr Shakti Lamba who studies the evolution of sociality and culture in humans. She collects detailed networks of knowledge, prestige and friendship in villages with contrasting cultural structures in rural India.

Symbai is a solar powered Raspberry Pi/Android anthropological research tool allowing Shakti and her field assistants to work collaboratively in areas with no power or internet connectivity. Data collected is synchronised automatically at the end of each day, and includes hundreds of photographs for people to identify each other (in places where names are used differently to western culture), audio recordings of verbal agreements (a requirement in preliterate societies), and information on who knows who.

The Raspberry Pi networking approach used for Symbai is a direct descendent of the experiments we carried out in London during the Sonic Bike workshop.

Appropriate technology

Machine Wilderness (2015) http://fo.am/machinewilderness/

Machine Wilderness is a free open workshop, crossing the arts-sciences boundaries and merging ecology and design, run in collaboration with Theun Karelse at Foam Amsterdam. Humans have changed animals, crops and landscapes to fit with industry. We've designed machines and technology to efficiently harvest our landscapes. What would a machine look like that feeds a landscape? That is not efficient, but subtle, or graceful? Machine Wilderness asks if we can adapt our tools to living landscapes; play by their rules. Can we design technology in terms of organisms and living processes? Investigating the relationship between human-made machines and the local environment, we use design exercises and field explorations to prototype machines adapted to natural systems. This workshop was funded by FEAST Cornwall, Creative Skills, and Stimuleringsfonds Creatieve Industrie (Netherlands) , and was invited as part of the global climate art festival ARTCOP21.

Bumper crop (2014) - http://fo.am/bumper-crop/

Bumper crop is an Android game commissioned by Falmouth University as part of the Arts and Humanities Research Council Play to Grow project “exploring and testing the use of computer games as a method of storytelling and learning to engage urban users in the complexities of rural development, agricultural practices and issues facing farmers in India”.

Education

Fundamental to many of the issues Foam Kernow is addressing are challenges and inadequacies in education. As an independent organisation, we have been able to successfully engage with education on levels from primary schools to further and higher education - as well as adult education.

Education

Teacher training at Primary level (2015)

A UK Department of Education funded project to join up 10 primary schools in Cornwall and increase digital literacy and get them programming. The teachers are very important people in this equation, so we have been providing inset training days for 10-20 teachers and getting them confident and familiar with the Raspberry Pi and trying out some programming. Foam Kernow has additionally been using this opportunity to gather research on feasible projects that can result in long term benefits for the schools involved.

Raspberry Pi Foundation Picademy (June 2015)

Foam Kernow helped out with the Raspberry Pi Foundation at their Picademy teacher training event in Exeter. These are designed for local teachers to get more confident with computers, programming and electronics to the point where they can start designing their own teaching materials on the second day of the two day course.

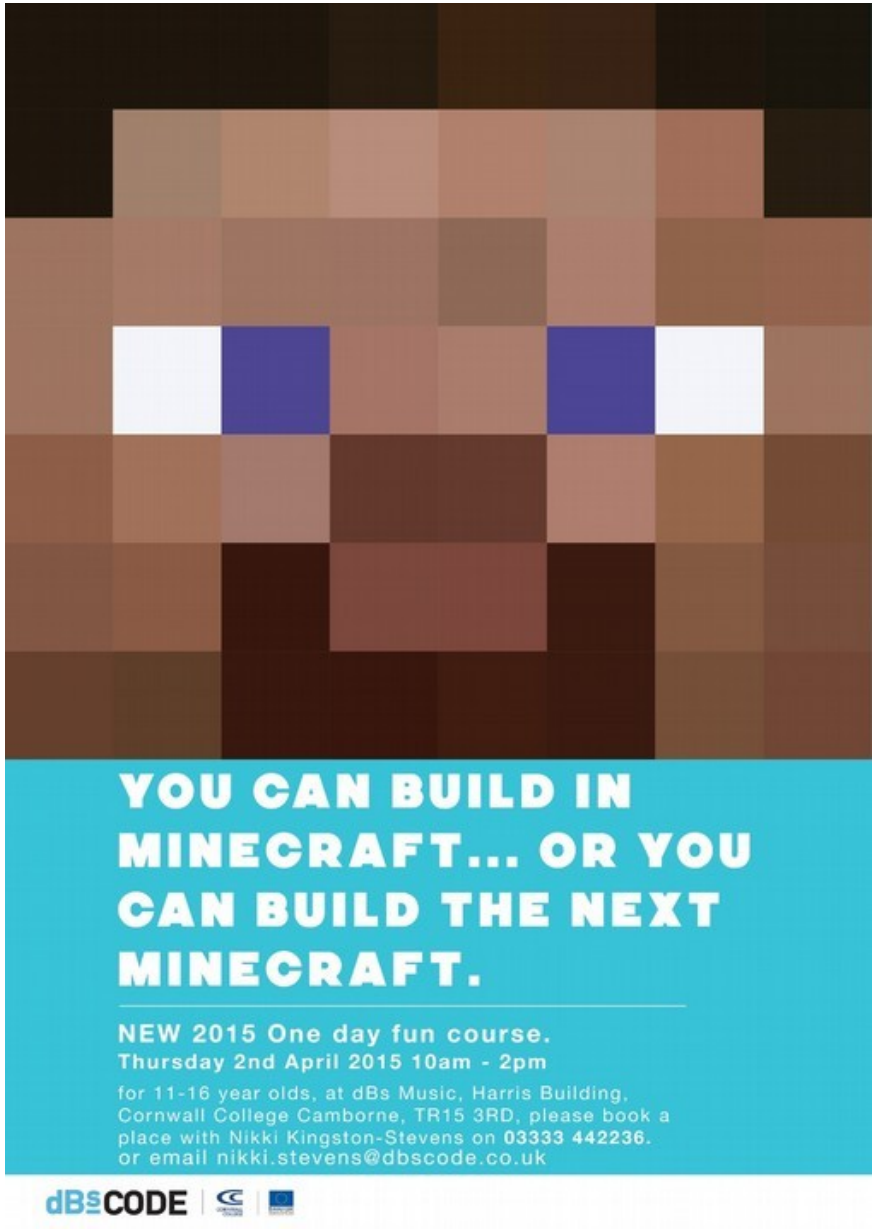
Education

Minecraft Hacking taster workshops (2014-2015)

Two one day long Easter schools for Cornwall College to give budding programmers between 11 and 16 a taste of professional games development. We use 20 Raspberry Pi computers, which we network together to teach python programming using the Minecraft API to build castles, spiders and an infinite house generator.

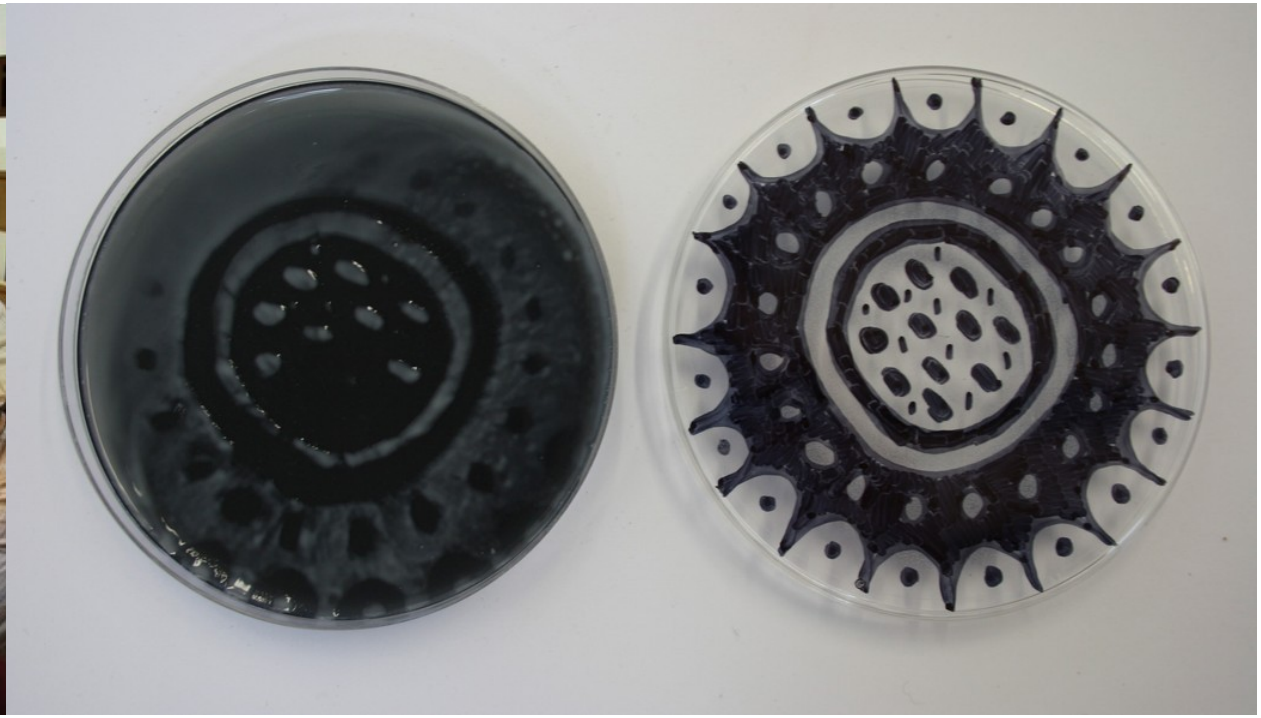
Agile Summer School (2014)

A two week course with Cornwall College to encourage algorithmic literacy, with a focus on employment – agile methods and test driven development (TDD), and aimed at people about to enter or re-enter employment. We taught the culture the participants would encounter in modern software development, and this was driven by Cornish embedded technology company Bluefruit alongside Foam Kernow. We worked with participants from a mix of backgrounds, some recent graduates and some experienced programmers wanting to catch up with software engineering practice. Based on feedback from the recently graduates we were able to provide a totally different approach to that currently taught in colleges and universities.



Education

Yeastogram workshop (2015) http://fo.am/blog/2015/03/09/biohacking-and-yeastograms/
A collaboration with the London Biohackspace at Foam making images from yeast, fusing art and science with the aim of exposing everyone to something new. Attended by a mix of artists, scientists, local farmers and web designers, we made agar from potatoes, coloured with activated charcoal and food colouring. The yeasty petri dishes were then exposed to high-powered UV LEDs overnight to selectively kill the yeast using patterns designed by the participants. A patient 24 hours later, and the beautiful yeastograms were ready.



Education

PhD students

At Foam Kernow, we are formal external supervisors for two PhD students working in the sciences. Charlie Ellis' project involves understanding the impacts of stocking activities performed by a local charity, the National Lobster Hatchery, on the lobster fishery – so far this has combined laboratory work, sampling on commercial fishing boats, and developing a bespoke smartphone app. Lewis Campbell's project uses citizen science to look at how epidemic diseases change the behaviour of wildlife populations – this is in collaboration with the Zoological Society of London and the University of Exeter. We offer students a new environment to work in, outside formal educational institutions, and encourage them to draw from a greater breadth of inspiration and approaches.

Residencies (2003 – ongoing) http://fo.am/residencies/

Foam has offered residencies to generalists whose work, interests and lifestyles are aligned with Foam's, since 2003. Our residencies are designed for creatives who can work independently while also appreciating input and inspiration from their peers. We have hosted over 80 residents from Europe and beyond, in residencies lasting from a day to a year. The motivation for this programme emerged from a perceived need of artists and designers for opportunities to pursue concentrated research and experimentation without the immediate pressures of production.

At FoAM Kernow we run a 'Human in Residence' scheme – this provides an opportunity for people to develop their more ambitious projects, and is open to humans from any background. Residents have free access to a physical space to work, and our support for the expansion and realisation of ideas, the formation of networks, and the practicalities of seeking funding.

We thought we'd end with a few of the things our lovely collaborators, participants, and humans in residence have said about Foam Kernow:

"Yesterday was *the* day. We stopped using the Psions for group composition and pup focal data and fully switch to using Mongoose 2000! Robert actually cheered at the news - quite an extreme response for a usually unflappable person"

“I found it difficult to identify groups working across the art/science divide. Attending the biohacking lecture was the moment this changed. Meeting Foam Kernow and their expanded network, opened up a world of contacts and experiences to me.”

“Thanks for organising yesterday, really interesting, both in terms of the work and meeting people”

"The workshop provides a space to help facilitate a cross pollination of ideas between those engaged art/science"

"They operate an outward looking, inclusive organisation, which offers workshops, activities and research-based knowledge exchange. I'm so glad I found their work, it's made a huge difference to my PhD project in terms of my approach to collaboration. They have an empathetic, intelligent approach to working with people from all sorts of backgrounds, which makes them so enjoyable to work with."

"A diverse array of scientists, artists and inquisitive folk. I feel this kind of gathering is important in building links between people and providing a space for exciting, creative projects to develop”

"Yes, the tablets and app are live. We have been testing these in the field since the start of the year and they went in to full use in June. They are now being used to collected all the data on group composition (mongoose presence/absence), weights, babysitting, escorting, pregnancy, oestrus and mate-guarding at each group visit. They also collect all the GPS points we were collecting at the start and end of each group visit plus more, as they record a bread crumbs of GPS points throughout each visit and record a GPS location with every data record. This has been going smoothly and saving the guys a lot of time."

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