2017 YCCSA SUMMER SCHOLARSHIP PROJECT SUBMISSION

This form is for prospective project supervisors to submit their projects to be included in the YCCSA Summer Scholarships Programme for 2017.

It is the purpose of the YCCSA Summer School that any projects submitted are novel and interdisciplinary in nature.

Date	17 December 2016
Supervisors' Names and Departments / Affiliation and Contact Email	Dr Debbie Maxwell (Theatre, Film and Television) debbie.maxwell@york.ac.uk Dr Alison Dyke (Stockholm Environment Institute, Environment Department) alison.dyke@york.ac.uk
Project Title	Reading the Bees: Creative explorations in data with rooftop honey bee colonies
Project Description	The honey bee is critical to pollination and hence to agriculture, but changing agricultural practices have reduced the amount and variety of forage available for pollinators. Threats from disease and pests have changed the ways honey bees are managed - beekeepers need to 'read' their bees, checking to see if they are healthy and productive, trying to predict swarming behaviour, and reading the local environment and weather to judge whether each colony has enough stores to survive. Technology offers one way to help and sensing kits such as Arnia (www.arnia.co.uk) and opensource beehives (http://opensourcebeehives.net) provide a good starting point. Bees have also been a rich source of inspiration in creative practice, spanning literature, art, architecture, design and folklore. We have hives on campus and would like to creatively explore what types of data can be gathered, whether it is through electronic sensors that detect humidity, temperature etc., through cameras (e.g. IR or visible spectrum) or audio, and what we can learn from visualising and sharing some of that data. For instance, what might students and staff learn about their immediate working environment from awareness and understanding of the productiveness of the colonies? How might new means of communication emerge between bees and humans? What might we learn from them? How is our sense of human community related to ecological ideas of community? The student involved in this project will get a chance to work with academics across disciplines (design, political ecology) and an experienced beekeeper as well as the opportunity to investigate data capturing hardware (e.g. sensors, cameras) and ways to interpret and visualise it for public display. The interpretation of data will be creatively explored by the student in conversation with supervisors and other stakeholders. By the end of the project we intend that this creative interpretation would be available as a publicly accessible set of data, for instance a website, or as a live data feed from the colonies displayed in the foyers of TFTV and Environment. This would be accompanied by an informal celebratory event

	and press release to showcase the work, supported by on-going art and design research projects working with local organisations and beekeepers.
Required Skills	The student requires the following *essential* skills: An open approach to working and interdisciplinary work Interest in environmental issues Interest in understanding complex problem spaces Aptitude and experience in programming or multimedia development, e.g. filming, or web development, or coding in Processing, HTML5, Javascript, Python. Critical thinking and reflective skills Good written and oral communication *Desirable skills include:* Experience of physical computing (e.g. Raspberry Pi, Arduino) Experience of user experience design and/or data visualisation Experience in qualitative research skills (e.g. interviewing, observation)
Supervision and Collaboration Arrangements	Both supervisors will offer formal weekly meetings with the student and will ensure that any annual leave breaks are staggered to enable the student to continue work throughout the summer school duration. Depending on the status of the work, additional informal meetings will also take place as required. Maxwell will work with student on designing and implementing hardware to capture data from the colonies, and liaising with beekeeper to install hardware. Dyke will work with the student to interpret and critically reflect on the data gathered, considering evaluation techniques and the implications arising from the work. Both Maxwell and Dyke will support on public engagement strategies and potential installation in department reception/foyers.
Project Dates	*The summer school runs for 9 weeks, starting on Monday, 10 July 2017 and finishing on Friday, 8 September 2017.*
Other Information	Strict health & safety protocols will be followed. Should any manipulation of beehives be required, then this will only take place under strict supervision of both an experienced beekeeper and project supervisor. The student will not have key card access to beehives. Protective clothing (full bee suit) will be worn at all times around the colonies (and will be provided for the student). Student access and manipulation of the beehives will be at the beekeeper and supervisor's discretion. If student is not keen to be involved in working with bees then this does not preclude working on the project (i.e. supervisor or beekeeper can install hardware). This project is supported by both TFTV (through reasonable funding of hardware and software to support the research aims) and Environment (through provision of desk space for the student). Additionally, Maxwell's AHRC Hacking the Bees (Feb 2017- Jan 2018) public engagement and impact project, working with community partner York Explore, provides potential for a summer school student to engage with a wider research team across York, Sheffield, and Lancaster Universities, and will provide a context for sustained impact for the outputs of the student's summer school work. The proposed project represents a new collaboration between TFTV and SEI and builds on both supervisors' work on 'more than human' understandings of nature/society relations, linking into Maxwell's AHRC project Telling the Bees (http://gtr.rcuk.ac.uk/projects?ref=AH%2FM009319%2F1), Dyke's BBSRC project

	PuRpOsE (https://www.york.ac.uk/sei/staff/alison-dyke/#research) and rooftop bee colonies in both TFTV and Environment buildings.
References	Borodale, S. (2012) *Bee Journal*, Random House. Edwards, L., Maxwell, D., Pillatt, T., and Downing, N. (2016) *Beebots-a-lula, Where's My Honey?: Design Fictions and Beekeeping*. In *Proceedings of the 9th Nordic Conference on Human-Computer Interaction (NordiCHI '16)*. ACM, New York, NY, USA. Maxwell, D., Edwards, L., Pillatt, T. & Downing, N. (2016) *Stories in a Beespoon: Exploring Future Folklore through Design* in P. Lloyd and E. Bohemia (eds) Proceedings of DRS2016: Design + Research + Society – Future-Focussed Thinking, Vol. IX: 3485-3502. Porrini, C., Sabatini, A. G., Girotti, S., Ghini, S., Medrzycki, P., Grillenzoni, F., Bortolotti, L., Gattavecchia, E., & Celli, G. (2003) *Honey bees and bee products as monitors of the environmental contamination.* Apiacta, 38(1), pp.63-70. Thwaites T. (2010) *Policing Genes,* in IMPACT! Exhibition Catalogue. Available at: https://www.epsrc.ac.uk/newsevents/pubs/impact-exhibition-catalogue Whitehorn, P. R., O'Connor, S., Wackers, F. L., & Goulson, D. (2012) *Neonicotinoid pesticide reduces bumble bee colony growth and queen production.* Science, 336(6079), pp. 351-352.

When complete, please email the form to sarah.christmas@york.ac.uk