School of Computing, Engineering, and the Built Environment
Edinburgh Napier University

PHD STUDENT PROJECT

Application instructions:
Detailed instructions are available at :
https://www.napier.ac.uk/research-and-innovation/doctoral-college/how-to-apply

Prospective candidates are encouraged to contact the Director of Studies (see details below) to discuss the project and their suitability for it.

Project details

Supervisory Team:
- DIRECTOR OF STUDY: Dr Inge Panneels (Email: i.panneels@napier.ac.uk)
- 2ND SUPERVISOR: Prof Alistair Lawson

Subject Group: Applied Informatics

Research Areas: Computer Science: Human Computer Interaction

Project Title: Social Credit Systems to support Ecological Citizenship

Project description:

We are seeking a PhDstudent who has interest in developing a digital framework and tools for social innovation at the intersection of sustainability, informatics and social and environmental justice.

In Ecological Justice, Weston notes "human rights advocates, champion the ecological rights of future generations", i.e. our human rights and ecological justice are intertwined (2012). Simply put "our societies [and] descendants depend on achieving ecological justice for future generations" (Weston, 2012, 43). I.e., we must protect future generations through Ecological Citizenship, a term defined by Philips et al (2022). We propose that a digital mutual credit system is a possible tool that could be deployed to incentivise ecological citizenship in context of a circular economy.

We are looking to develop Creative Cred (CC) that will deploy a digital mutual credit system prototype which has been tested elsewhere (Sardex: https://www.sardexpay.net) (Sartori and Dini, 2016) that incentivises Circular

Economy practices in Edinburgh, which is committed to Net Zero by 2030, and where we have access to existing networks . This aligns with the Scottish Government's commitment to embed, "a fully circular economy approach" by 2032 and the Circular Economy Act (2024) with a strategy being developed currently. It is estimated that a circular economy could unlock $4.5 trillion worldwide by 2030 (Lacy and Rutvqist, 2015). CC will generate data-driven insights to guide research, investment and policy. Our development of a mutual credit system that changes how and what we value is a response to the twinned crises of ecological degradation and economic pressures faced by creative SMEs. CC aims to support the adoption of more sustainable ways of working: from design to creation, back-end business practices to take-back and repair services. We demonstrated the feasibility of Creative Cred (Phase 1) in response to an open call (co-designed by PI) led by Mary Michel (Ostrero), Dr Juli Huang (University of Edinburgh) and Dr Tom Flint (Edinburgh Napier University).

This project will work closely with Ostrero and academic staff at Edinburgh Napier Univeristy. You will be supervised by Dr Inge Panneels whose background and expertise is in data driven innovation (Panneels, 2023, Lechelt, Panneels and Helgason, 2002) to support sustainability and social innovation in the creative industries and the circular economy (Panneels et al, 2024); and by Alistair Lawson, Associate Professor of Computer Science ,who has extensive experience working with industry and third sector organisations in areas including scalable systems, data driven decision making and applied AI, and in the supervision of PhD and MRes students - working with industry and third sector organisations. You will also be working with Circular Economy specialists Ostrero and other local agencies to develop and test these.

References:

Edinburgh City Council (2021) 2030 Climate Strategy. Available at: https://www.edinburgh.gov.uk/downloads/file/29612/business-and-skills-in-a-net-zero-economy

Lechelt, S., Panneels, I., & Helgason, I. (2022). Data-Driven Innovation for Sustainable Creative Practice. BCS HCI, July 2022 http://dx.doi.org/10.14236/ewic/HCI2022.51
Lacy, P. and Rutqvist, J. (2015) Waste to Wealth. Basingstoke: Palgrave Macmillan

Panneels, I. (2023) 'The Quintuple Bottom Line: A Framework for Place-Based Sustainable Enterprise in the Craft Industry', Special Issue: The Creative and Cultural Industries towards Sustainability and Recovery. Sustainability, Sustainability 15, no. 4: 3791. https://doi.org/10.3390/su15043791
Panneels, I., Lechelt, S., Schmidt, A. and Coskun, A. (2024) 'Sustainability Expectations in the Creative Economy'. In: Terras, M., Speed, C., Osborne, N. and Jones, V (Eds.) Data Driven Innovation in the creative industries. London: Routledge (DOI: 10.4324/9781003365891-11)

Philips, R., West, S., Shepley, A., Baurley, S., Simmons, T., Pickles, N. and Knox, D. (2022) Case Studies, Projects and Perspectives; analyses through a design-lens, positioning 'prefer-able future(s), Cumulus, Detroit, 20212, conference proceedings. Avalable at: https://researchonline.rca.ac.uk/5063/8/Cumulus_Detroit_CameraR_Submission.pdf

Sartori, L. and Dini, P. (2016) "From complemetnary currency to institution: a micor study of the Sardex mutual credit system", Stato e Mercato: Quadrimetrale di Analisi Dei Meccanismi e Dell Istituzioni Socialia, Politche ed economsiche, 107, pp. 273-304. Avaialble at: DOI: 10.1425/84070

Scottish Government (2020) Update to the 2018-2032 Climate Change Plan. Report. Available at:
https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2020/12/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/documents/update-climate-change-plan-2018-2032-securing-green-recovery-path-net-zero/update-climate-change-plan-2018-2032-securing-green-recovery-path-net-zero/govscot%3Adocument/update-climate-change-plan-2018-2032-securing-green-recovery-path-net-zero.pdf

Scottish Government (2024) Circualr Economy (Scotland) Act 2024. Available at:
https://www.legislation.gov.uk/asp/2024/13/enacted

Weston, B. (2012) 'Theorertical Foundations of intergenerational ecological justice: an overview'. Hum. Rts. Q. 34

Candidate characteristics

Education:

A first degree (at least a 2.1) ideally in Applied Informatics or Information Systems, or Computer Science, or Software Engineering with a good fundamental knowledge of user centred design and systems development, and an interest in data driven decision making and applied AI

Subject knowledge:

English Language Requirement:
IELTS score must be at least 6.5 (with no less than 6.0 in each of the four components), Other equivalent English language qualifications will be accepted. Full details of the University's policy are available online.

Essential attributes:

- Experience of user centred design, and systems development
- Competent in data driven decision making, digital tool implementation and testing
- Knowledge of relevant evaluation approaches
- A keen interest in sustainability, social innovation, and environmental justice.
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management
- The ability to work comfortably with people with a range of ages and backgrounds.