

changing the world step by leap

Alan Dix



<http://alandix.com/>

[@alanjohndix](#) [@CompFoundry](#)



Tiree

Tiree Tech Wave

... who knows when?

<https://tireetechwave.org/>



building



UNDEB EWROPEAIDD
EUROPEAN UNION



Llywodraeth Cymru
Welsh Government

**Cronfa Datblygu
Rhanbarthol Ewrop
European Regional
Development Fund**

the foundry



community



mission

COMPANY COPPER WORKS,
near SWANSEA.
London Published by Eric-Dr. Wood 1991

Drawn K. E. D. 1841 by J. B. 1841

today I am not talking about ...

IT for small communities

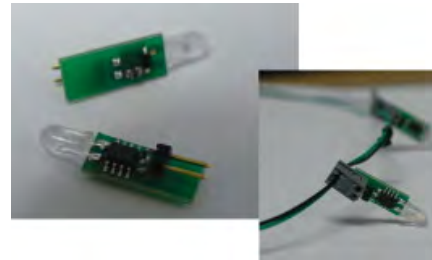


walking round Wales

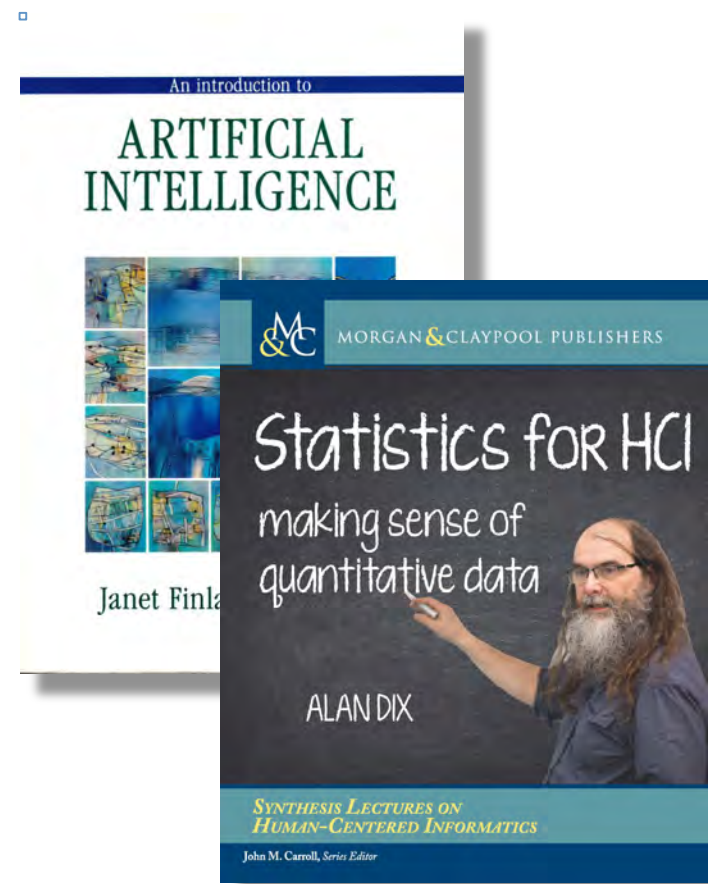
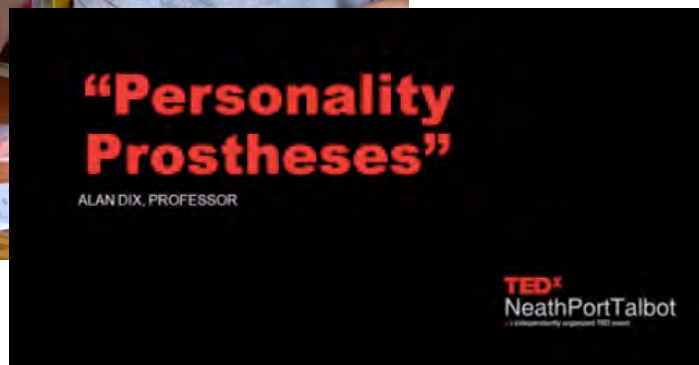
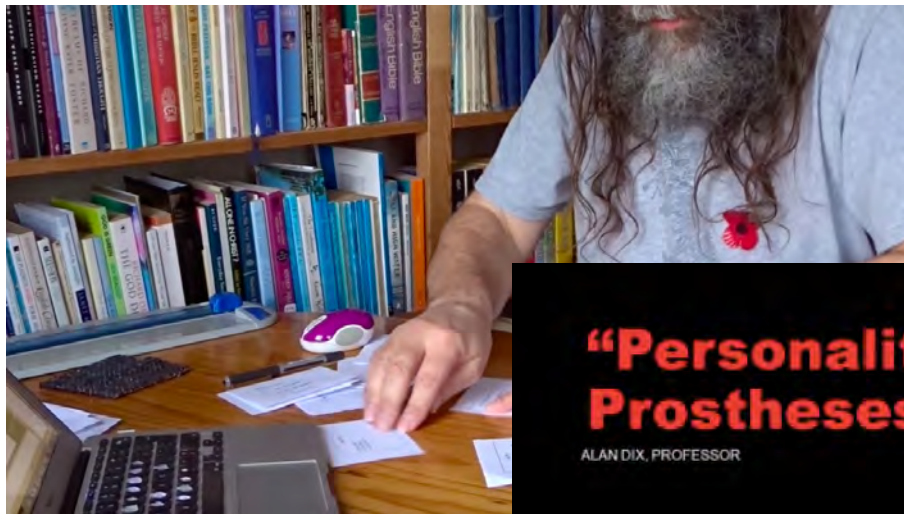
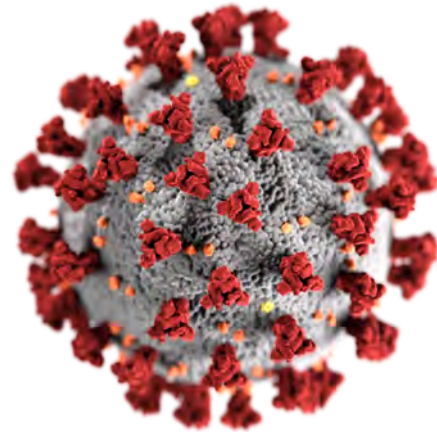


Or ...

- physicality and product design
- the long tail of small data
- algorithmic bias
- creativity
- now
- digital light
- digital humanities
- long term interaction
- virtual crackers and slow time
- modeling dreams, regret and the emergence of self



... or even



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personal drivers

childhood and family
academia and research



social
background

life chances

personal

practical
innovation

maths and
theory

Human Issues in the use of Pattern Recognition Techniques

Alan Dix *

October 1991

1 Introduction

The purpose of this chapter is to emphasise that the use of pattern recognition or similar techniques in systems with a human user. Human issues in such systems are far easier to address than the attention given to them. It highlights the need for a thorough theoretical understanding of the human issues in the use of computer-based techniques in order to be able to predict the consequences and consequences of their use.

The chapter focuses on two applications of pattern recognition: one is an innovative example based method of query processing and the other is the more established use of neural nets for route planning and credit vetting.

In the latter example the 'user' of the system is not just the computer operator who directly uses the computer, but also the client who is the target of the process. This wide view of human-computer interaction means we have to deal not 'just' with the usability of systems but also the entailing ethical and legal responsibilities.

Range of systems covered

This chapter concerns the use of example based or taught pattern recognition techniques. This includes most neural net or connectionist approaches and also inductive learning. These techniques all operate by being given a set of examples and from them generalising to unseen data. They are essentially

*work funded by SERC Advanced Fellowship B/89/ITA/220

1992 first paper
in HCI literature
maybe first ...

inter alia ...

Human Issues in the use of Pattern Recognition
Techniques

Alan Dix *

October 1991

warns of the danger of gender and ethnic bias in
black-box machine learning systems

gives example: database queries using ID3

offers (partial) solution: Query-by-Browsing

and even some broader heuristics

1. Introduction

The purpose of this chapter is to emphasise that when including neural nets or similar techniques in systems with a human component, the technological issues are far easier to address than the attendant human ones. It highlights the need for a thorough theoretical understanding of the behaviour of the computer-based techniques in order to be able to assess the human consequences of their use.

The chapter focuses on two applications of pattern recognition. One is an innovative example based method of query construction and the other is the more established use of neural nets for routine decision making such as credit vetting.

In the latter example the 'user' of the system is seen as not just the operative who liberally uses the computer, but also the client who is the target of the process. This wide view of human-computer interaction means we have to deal not 'just' with the usability of systems but also the entailing ethical and legal responsibilities.

Range of systems covered

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The Guardian

Self-driving Uber kills Arizona first fatal crash involving pedestrian

Tempe police said car was in autonomous mode at the crash and that the vehicle hit a woman who later died



WIRED

BRIAN BARRETT GEAR 05.28.15 07:00 AM

GOOGLE MAPS IS RACIST BECAUSE THE INTERNET IS RACIST

Futurism



We Need to Open the AI Black Box Before It's Too Late

Tag Hartman-Simkins; Ashton Bingham

by Bahar Gholipour

January 18, 2018

Future Society

16251

My first encounter with racism in social media was from a friend who causally mentioned one day, "You should see what happens when you Google 'black girls.'" I did and was stunned.

but ... this was all evident
25 years ago
why didn't I do more?

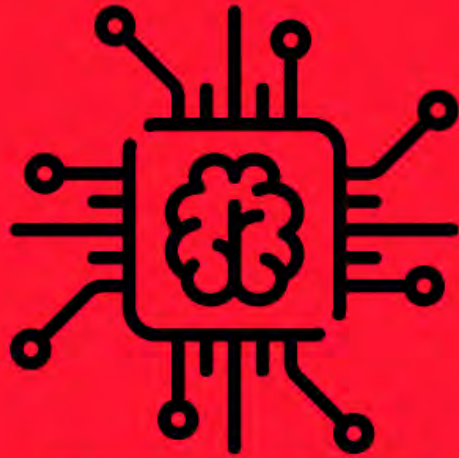
publication ...
fire and forget?

NOT-EQUAL

**BRINGING PEOPLE TOGETHER TO HELP
DEVELOP PRACTICAL RESPONSES THAT
CAN MAKE OUR DIGITAL SOCIETY
WORK FOR EVERYONE.**

JOIN THE NETWORK. MAKE A DIFFERENCE.

NOT-EQUAL



ALGORITHMIC SOCIAL JUSTICE

We use computers to make decisions about our lives and our services. How can computers and their underlining algorithms help make the decisions that affect us all, fairer?



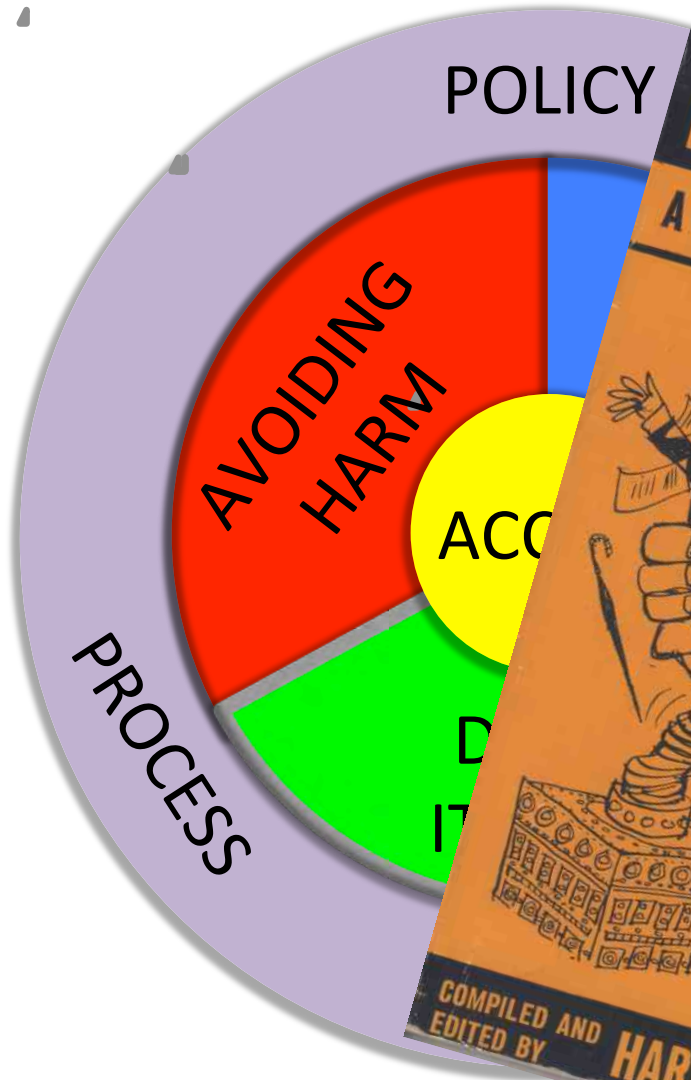
DIGITAL SECURITY FOR ALL

Computers and applications should safeguard and protect the interests of everyone. What digital security models can ensure the safeguarding of all in our digital society?



FAIRER FUTURES FOR BUSINESS + WORKFORCE

Digital platforms create value and opportunities. What business models may offer fairer opportunities and working conditions for all in the platform economy?



THE BEAST OF BUSINESS

A RECORD OF COMPUTER ATROCITIES

Human beings of the world, unite! The computers are taking over — and from now on it's got to be them or us. This book is a record of their atrocities against the human race...and a guerrilla warfare manual for striking back. Do it now — before it's too late!

COMPILED AND EDITED BY **HARVEY MATUSOW** 6s.

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deep digitality

look to the hills

the nature of money

radical imagining

□ The drainage pattern is thus superimposed and, apart from the major structural disturbances of the Neath and Tawe, the river system does not relate to the underlying geology.

D. Leighton (1998) Mynydd Du and Fforest Fawr: Evolution of an Upland Landscape in South Wales



the **digital geology**
is shifting beneath our feet

...but our **social and industrial topography**
remains rooted in the physical and
organisational constraints of the 19th century

abracadabra

what if?

silicon revolution

before the steel revolution?

digital technology

before the Medicis



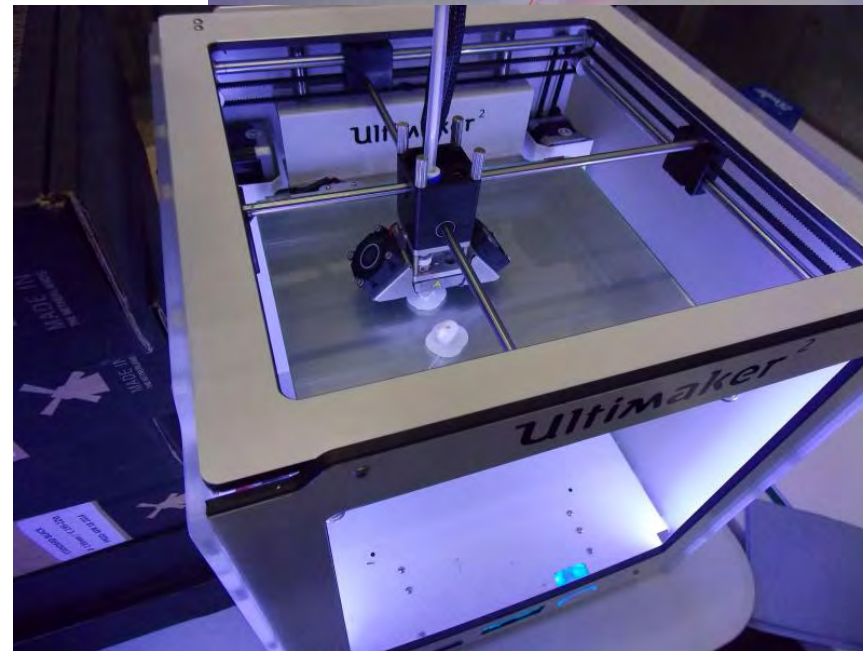
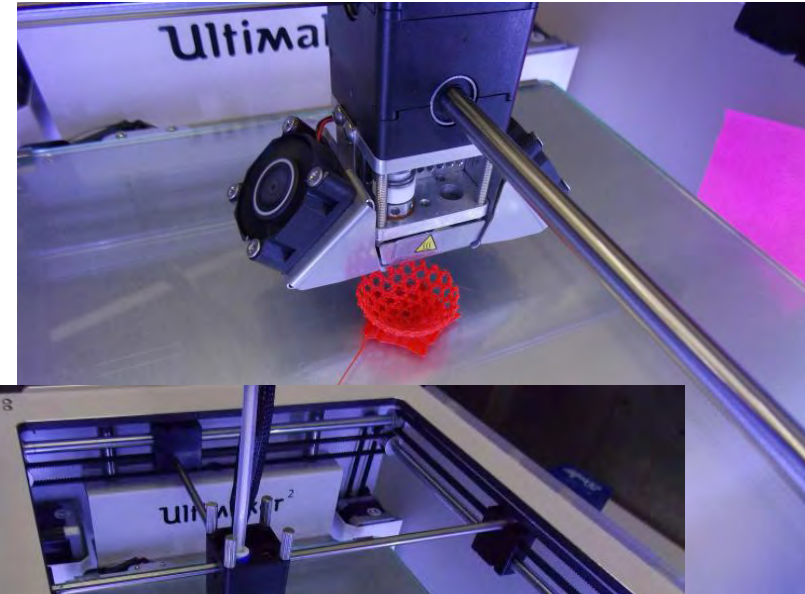
radical reimaginings

shoes of different sizes



[https://commons.wikimedia.org/wiki/File:Shoes,_pair_\(black\)_\(AM_1978.53-2\).jpg](https://commons.wikimedia.org/wiki/File:Shoes,_pair_(black)_(AM_1978.53-2).jpg)
https://commons.wikimedia.org/wiki/File:Many_Victoria_Shoe_Boxes.jpg

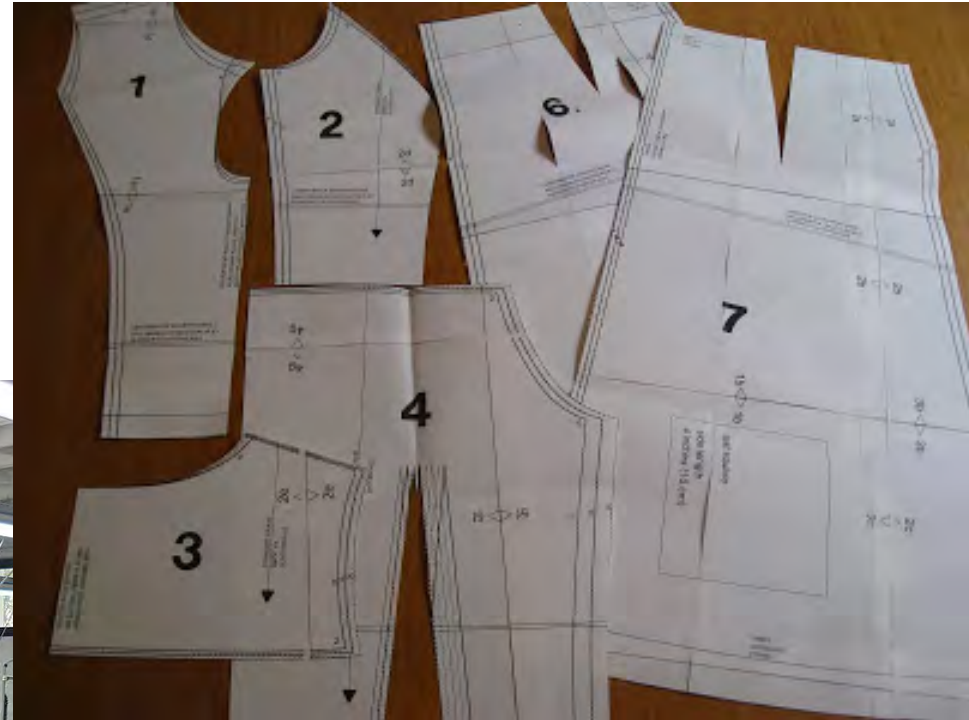
the printed washing machine



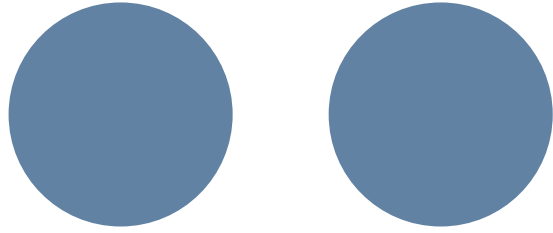
photos: Jacqui Bennett

https://commons.wikimedia.org/wiki/File:Washing_Machine_Beko.jpg

fashion



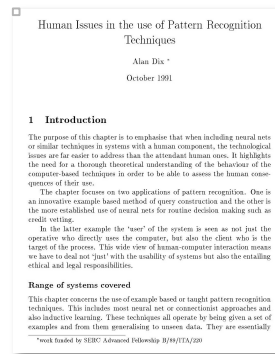
<http://nattyjanesews.blogspot.com/2012/02/nattyjanes-dress-variation-part-1.html>
https://commons.wikimedia.org/wiki/File:Sewing_department_in_Hungary.jpg



theoretical research

research
questions

new knowledge
(publications)

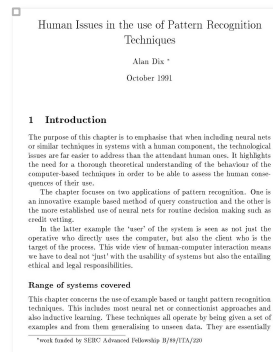


translational research

research
questions

new knowledge
(publications)

find
application



applied research (service role)

real
application



use existing
knowledge



practical
application



inspirational service

real application



use existing knowledge



practical application



identify gaps and generalisations

new research questions

