

§0 Introduction

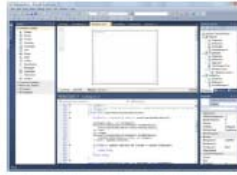
Note Title



Peons



Proletariat



Programmed consumers

Systems builders

In the future, there will be a divide between systems builders & dumb low-wage consumers. All the automatable skillset (lawyers, doctors, teachers) will be automated. All it takes is one clever systems builder to build a system that replaces an entire profession.

Zadie Smith's review of 'The social network', screenplay by Aaron Sorkin, in the New York Review of Books

Watching this movie, even though you know Sorkin wants your disapproval, you can't help feel a little swell of pride in this 2.0 generation. They've spent a decade being berated for not making the right sorts of paintings or novels or music or politics. Turns out the brightest 2.0 kids have been doing something else extraordinary. They've been making a world.

How do you make sure you're on the right side of this divide? Become a systems builder.

Be an expert in the aesthetics and psychology of design.



Data is smarter than algorithms. The smartest data is about how things relate to each other, i.e. about networks. Learn to listen to data.



Turn the richness of the world into APIs.



Never ever do repetitive tasks on the computer.

Zadie Smith's comments on 'You are not a gadget: a manifesto' by Jaron Lanier in the New York Review of Books

We think we're interacting with our friends. The machines get a series of keypresses and mouseclicks, they store them in a database, they return text & bytestreams.

What does this have to do with you?

'How everything is related to everything else' is too big a problem. The most interesting tractable network in the world today is the Internet. Let's hone our tools by working out how it works.

Communications networks and big data will change society as fundamentally as the invention of agriculture or the industrial revolution. This change has barely begun. Be part of it.

The UCL networks group is above all a systems research group. Learn from us how to be systems builders.

genetics
economics
social
transport
energy
communications
epidemics
finance

The great thing about the Internet is that we have the source code. If we want to know why the network is behaving in a certain way, we can debug line by line, and run controlled simulations and experiments. Other scientists would kill to be able to do this.

This course will teach you the fundamental tools for making sense of "networks of things", in the context of the Internet.

These tools are mathematical.

§1 Probability and random variables

§2 Simulation

§3 Drift models (average behaviour)

Fixed point models (reductionist view of networks of components)

§4 Teleological models (wholistic view / emergent behaviour)