

Cyberspace, the Law, and our Future

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Cyberspace



Gibson coined the term in a 1982 short story, used it in a famous 1984 novel, and defined it clearly in 1986

In 2000, he deprecated it as "evocative and essentially meaningless ... suggestive ..., but with no real meaning"

Gibson W. (1982) 'Burning Chrome'

Gibson W. (1984) 'Neuromancer'

Gibson W. (1986) 'Count Zero'

Gibson W. (2000)

'No Maps for These Territories'

Case's deck enabled him to jack into **Cyberspace**,
"a graphic representation of data abstracted from the
banks of every computer in the human system ... lines
of light ranged in the nonspace of mind, clusters and
constellations of data" (Gibson 1984, pp. 12, 67)



Case's deck enabled him to jack into **Cyberspace**.
It "projected his disembodied consciousness into the
consensual hallucination known as the matrix ...
a consensual hallucination experienced by millions ..."
(Gibson 1984, pp. 12, 67)



What did Cyberspace signify? 1983-2000

- Cyberspace as **Individual Hallucination** arising from Human-with-Machine-and-Data Experience
- Cyberspace as **Shared Hallucination** arising from IT-Mediated Experiences of Humans
- Cyberspace as a **Locus of Human Behaviour**
 - use of intended features
 - use of unintended features (bugs)
 - use of unintended features ('affordances')
 - "The Street finds its uses for things"
Gibson W. (1982) 'Burning Chrome'

What does Cyberspace signify? 2000-2020

- **From the Call of Papers:**
"new developments in ... cyberspace technology ...hacking, cyber warfare, FinTech, Blockchain ... cryptography ... e-government initiatives"
- **Communications Infrastructure for Machines**
Inter-Machine (M2M) incl. 'The (Inter)net(s) of Things'
- **Cyberspace as a Locus of Machine Behaviour**
Data Analytics
Artificial Intelligence / Machine Learning (AI/ML)

The 'Technology Neutrality' Principle

- A regulatory measure that "operates effectively and fairly in different technological contexts" (incl. at least foreseeable future technologies) (Bennett Moses 2007, p.239)
- Specify functions rather than procedures
- Avoids accidental dis/advantages for particular technologies
- Is less stifling of innovation
- Achieves longer lives for regulatory measures
- Mitigates harm from glacially slow law reform



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Windscale, 1957

**Chernobyl
1986**



Fukushima, 2011

**Three Mile
Island, 1979**



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Is Technology Neutrality an unachievable aspiration?

- Broad, functional statements may be:
 - too vague and ineffective for big risks
 - unjustifiable and unaffordable for lesser risks
- There's difficulty in defining scope of application:
Excessively inclusive and / or insufficiently specific
- **Needs are 'Techno-Specific' not 'Techno-Neutral'**



**Some Things are so different from Other Things
that they have to be Treated as Themselves**

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Would a 'Law of the Horse' be "doomed
to be shallow and to miss unifying principles"?

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"There was no analogy for the way in which Great A'Tuin the world turtle moved against the galactic night. When you are ten thousand miles long, your shell pocked with meteor craters and frosted with comet ice, there is absolutely nothing you can realistically be like except yourself"

Pratchett T. (1988) 'Sourcery: A
Discworld Novel' Corgi, 1988, p.13

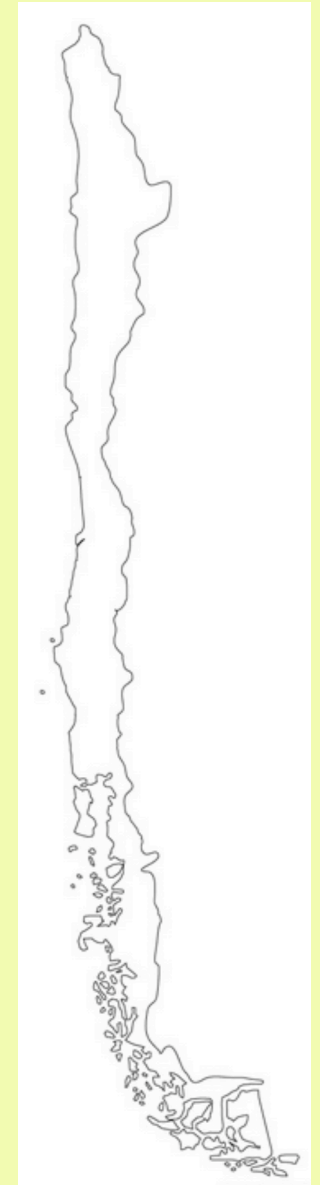


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Technological Understanding in the Courts

- source programs "afford instruction to the operator"
- "source code consisted essentially of instructions ... to be read and followed by a human reader"
- Computer Edge v Apple
1983-86 – Gibbs J., Deane J.



Technological Understanding in the Courts

- In c.20 expert evidence cases:
 - District Courts, Tribunals, Patents Examiners have sought and demonstrated technical understanding
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Technological Understanding in the Courts

- In c.20 expert evidence cases:
 - District Courts, Tribunals, Patents Examiners have sought and demonstrated technical understanding
 - Superior Court benches have done neither
- **The result has been instances of misapprehensions and ambiguities that appeared to be significant**
- Judges need to know when their pronouncements on the technical aspects of cases lack credibility
- Missing strategies:
 - A positive attitude to *amicus curiae* submissions
 - Direct commissioning of technical and expert evidence, to avoid the filter of party self-interest

Generations of Software Development Tools

- **3G** – algorithmic / procedural s'ware dev
These define a **solution**, and imply a **problem**
- **5G** – 'expert systems', e.g. rule-bases
These define a **problem-domain**, but problems and solutions are, at best, perhaps inferrable
- **6G** – empirical techniques, e.g. neural nets
These comprise a **mere heap of data**, processed generically to generate some weightings

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- **6G** – empirical techniques, e.g. neural nets
These comprise a **mere heap of data**, processed generically to generate some weightings
- **'A set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result'**

Threats Inherent in Later Generation Software Development Neural Nets, 'Big Data Analytics', 'Machine Learning', 'AI/ML'

- **No Humanly-Understandable Rationale** for inferences drawn and hence decisions made
- **Denial of Decision-Transparency**
- **Destruction of Accountability**
- Abandonment of Reason / Deification of Data
- Government robot-decision-making
- The imported scourge of credit ratings

The Six Papers of the Special Issue

- **Paper 1 – David Lindsay**
Injunctions to Block Access *re copyright infringements*
[A technological understanding issue: "an apparent conflation between a domain name and a URL"]

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- **Paper 2 – Katharine Kemp & Ross Buckley**
Powers needed by Regulators when an e-money provider experiences financial distress
- **Paper 3 – Cheng-Yun Tsang and colleagues**
The lack of interest earnings on balances held as e-money, as a disincentive to savings
[e-money cf. bank-deposits, rather than of its own kind, and hence needing a *sui generis* regulatory framework]

The Six Papers of the Special Issue

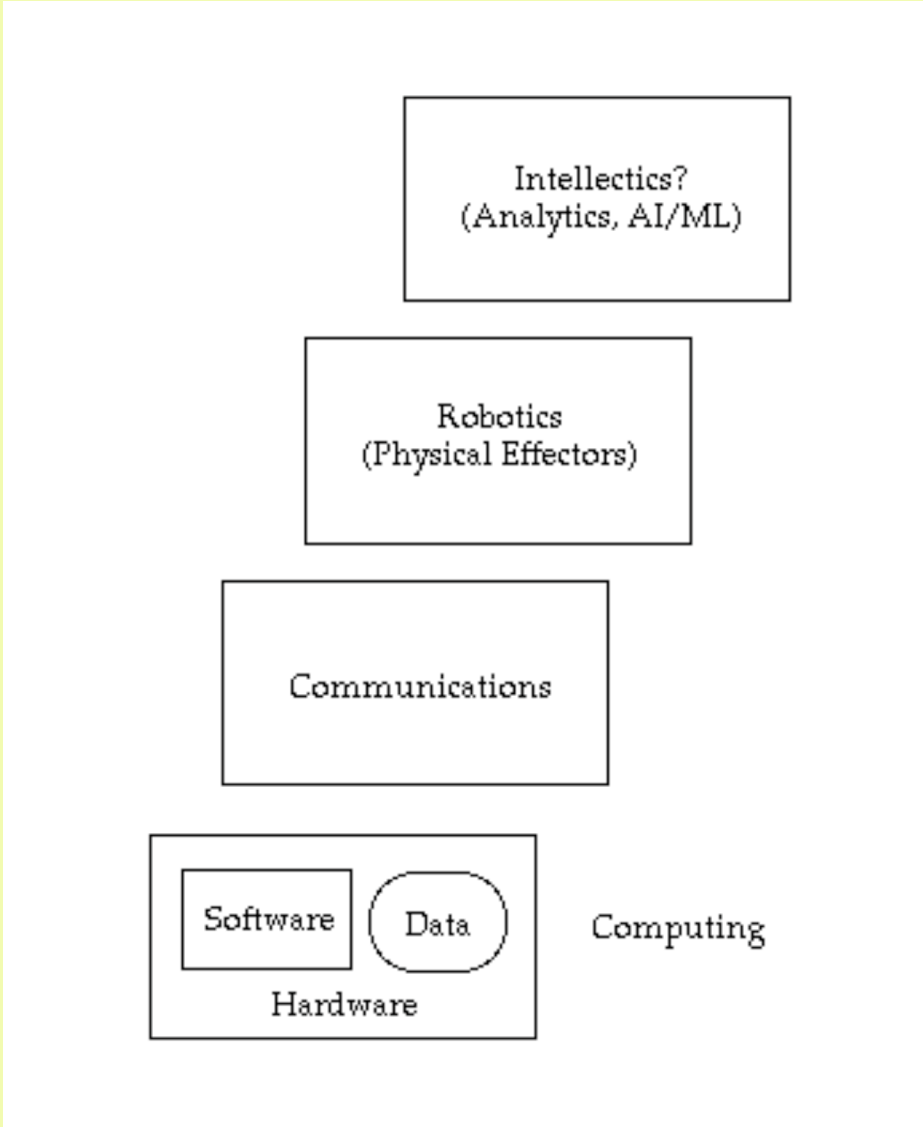
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- **Paper 5 – Rachel Hews & Nicolas Suzor**
*Uses of IT during a trial giving rise to **prejudicial publicity***
[Current assurances of fairness are challenged by pervasive social media and bandwagon effects]
- **Paper 6 – Kerstin Braun**
'Social media misconduct' by jurors
[effectiveness and implementability of suggested controls]

Closing Thoughts Inspired by the Issue

- A meta-principle:
**Choose an appropriate scope for
technology-neutral requirement statements**
- Is Cyberspace still just a blizzard of data??
- Is Cyberspace becoming a protected enclave
for devices that act directly on the world?
- Is Cyberspace home to emergent 'intelligence'?



Cyberspace as a Locus of Machine Behaviour

A Singularity?? A Duality? A Multilarity

- Technologies are in a pologamous marriage
- Active management by humans is decreasing, delegation is increasing, control is being ceded
- **Society is sleep-walking its way into systems that involve risks that no-one has assessed**
- We're committing our children and grandchildren to be subject to (subjects of?) a technology-complex
- **A UNSWLJ Thematic Issue could address these substantial shifts in the nature of IT, and challenges they pose for regulatory schemes and court processes**

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