How to Write an AI (in under 500 lines)

Multi-objective Sequential Model Optimization

Tim Menzies
timm@ieee.org
http://timm.fyi

Computer Science

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Problem

Too many choices, not enough time to look at them all.

- e.g. Hundreds of cars in a car yard, you try three, then buy one;
- e.g. You can't test everything – so you just test a few;
- e.g. Software has 10^9 of options – but you have time to try a few.

So lets apply *sequential model optimization*:

- Xia *et al.* (2020), Hutter *et al.* (2011), Nair *et al.* (2018), Hsu *et al.* (2018), Mockus and Mockus (1989), Golovin *et al.* (2017)
- e.g. Hundreds of cars in a car yard, you try three, then buy one; Some terminology

$$\underbrace{y_1, y_2, \ldots}_{\textit{dependent variables, goals}} = f(\underbrace{x_1, x_2, x_3, x_4, x_5, x_6, \ldots.}_{\textit{indendepentvariables}})$$

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- But depndent variables are more expesnive to collect
- e.g. A supermarket has 100 apples. Which ones are tasty? So lets walk data incrementally:

Problem

Too many choices, not enough time to look at them all.

- adas

asdaasasa

```
function NUM.new(i,at,txt) --> NUM;  constructor;
  i.at, i.txt = at or 0, txt or "" -- column position
  i.n, i.mu, i.m2 = 0, 0, 0
  i.lo, i.hi = math.huge, -math.huge
  i.w = i.txt:find"-$" and -1 or 1 end
```

Test section one

What is Prolog?

- A programming language associated with artificial intelligence and computational linguistics.
- Based on formal logic.
- Declarative: Describe the problem, not how to solve it.
- Known for its ability to handle symbolic reasoning and knowledge representation.

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References

References I

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