

COMP 410: Course Introduction

Kyle Dewey

About Me

- My research
 - Automated program testing + CS education
 - Programming language design
- My dissertation used logic programming extensively
- I've taught this class a bunch

About this Class

- See something wrong? Want something improved? Email me about it!
(kyle.dewey@csun.edu)
- I generally operate based on feedback

Bad Feedback

- This guy sucks.
- This class is boring.
- This material is useless.

–I can't do anything in response to this

Good Feedback

- This guy sucks, *I can't read his writing.*
- This class is boring, *it's way too slow.*
- This material is useless, *I don't see how it relates to anything in reality.*
- I can't fix anything if I don't know what's wrong

–I can actually do something about this!

What is Logic Programming?

- Major programming paradigm – a way of thinking about problems
- Emphases thinking about exactly what the problem is, as opposed to exactly how to solve it. This is called declarative programming.
- For example: it's generally easier to say what constraints must hold for a valid Sudoku solution, as opposed to directly finding a valid Sudoku solution.
- Somewhat related to functional programming – we generally lack mutable state
- Unlike any other major paradigm, the distinction between inputs and outputs is intentionally blurred. You can take advantage of this.
- Basis in formal logic. It's the only major paradigm where “=” has the same meaning as it does in math.

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What is this Course?

- Strong emphasis on programming and using logic programming languages
- I want you to think in this paradigm, not merely force Java into it
- The ideas can be applied in non-logical languages, and your first assignment will force you to write in a logical way outside of a logic programming language (though you won't realize that's what you're doing yet)
- Little bit of theory

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What is this Course?

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- Thinking in a logic programming way
- Applying logic programming without a logic programming language

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- Artificial intelligence

–“Artificial intelligence” used to refer to search techniques, which is relevant to logic programming. Now the term largely refers to machine learning. What it means is a moving target.

–Machine learning (we won't do any sort of statistics)

–You can spend a career on the theory behind this stuff. I know some, but it's not my speciality.

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Syllabus