



Rules Fest 2010

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User-Mediated Rule Engine Execution

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Mindviews Labs

GWC Grindwork Corporation
Intelligent Automation

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Production Systems Technologies

morris technical solutions
Engineering Knowledge for Business

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communications
strategic thinking • creative action

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Motivation

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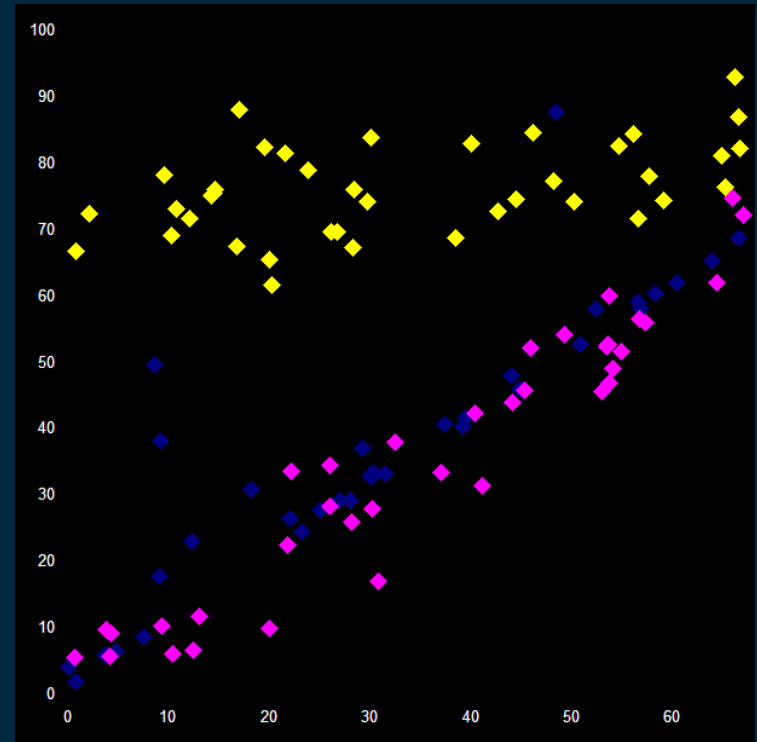
Sometimes the system
isn't smart enough

- When is a Novice Systems useful?
- My Problem Context
 - Expert System Development
 - Usable during development
 - Expert Users available

- How can a Novice System operate?
- Rule Engine execution steps
 - Pattern Match
 - Resolve Agenda
 - Execute

Pattern Match

- Fuzzy Matching
 - Graph interpretation
 - Image recognition



- Intuition
 - Sometimes the expert simply knows when a certain general context occurs

Pattern Match

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- Implementation
 - Rule engine modification
 - Fake via Execution intervention with generic rule

Rule 1A – Gateway Rule

Pattern: Condition where user interaction is desired

Action: UI for user to assert Trigger Fact

Rule 1B – Target Rule

Pattern: Trigger Fact is asserted

Action: Normal Rule action

Agenda

- User selects rule to fire
 - Math
 - Complex paths
 - Intuition/Creativity/Escape local minimum
 - Can be slow...

$$y = \int_0^1 \pi e^x dx$$

$$y = - \int_1^0 \pi e^x dx$$

$$y = \pi \int_0^1 e^x dx$$

$$y = \pi(e-1)$$

(a)

(b)

(c)

- Implementation
 - Rule engine modification
 - Fake via Execution by calling external code that allows user to examine the knowledge base

Rule 1A – Gateway Rule

Pattern: Condition where user interaction is desired

Action: UI for user to assert Trigger Fact

Rule 1B – Target Rule

Pattern: Trigger Fact A is asserted

Action: Normal Rule action

- User edits the knowledge base
 - Substitute complex goal-directed module loading
 - Jump to the desired conclusion
- Implementation
 - Rule engine modification
 - Provide call to external code that allows user to edit the knowledge base

- Pattern Match is a hard step to automate
- Agenda and Execute steps are good
 - Use Humans to direct problem-solving
 - Use Humans to directly provide an answer
- Novice System + Human Shepherd

- Interchange modules and people
- Learn from Expert Users by observation
 - Decision capture

- Latency
 - User interaction is “slow”
- Mistakes
 - Users can introduce bad data
- Lack of Context
 - User may need more context to act

Benefits

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- The Obvious
- Engagement
- Rule development feedback
 - User finds the same action is required over and over again
 - Easy to prioritize automation

- Development Process
 - User interaction and feedback
 - Provide immediate value
- Execution
 - Sometimes slower
 - Sometimes faster

- Implement more domain expert systems
- Improved Decision Rationale capture
 - Better insight for rule development
 - Requirements capture
- Predictive Knowledge Bases
 - Show the user what their actions will do

The Goal

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Automating Boring Engineering

Thank You!

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Questions?