The Problem – Uncertainties in Life

Examples:

<table>
<thead>
<tr>
<th>The Confused Student</th>
<th>The Frustrated Boy</th>
<th>The Concerned Parent</th>
<th>The Diligent Hosts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doesn’t know which profession he should study in college.</td>
<td>Doesn’t know what to buy his girlfriend for her birthday.</td>
<td>Wishes to make sure his son is not using drugs.</td>
<td>Holding a dinner party, wondering what food to make.</td>
</tr>
</tbody>
</table>

The Idea

• The more experience we gain, the less uncertain we are. I.e., after buying many gifts, even a "frustrated boy" will become an expert shopper.

• Possible to learn from others’ experience: An academic advisor who’s seen many “confused students” would be very helpful with this problem.

• Navi – a WWW-based system able to collect, store and process the life experience of all mankind.

How It Works

We couple each TQ with a questionnaire

Use Case – Questionnaire Answering

Decision trees are best after a lot of training, while other classifier types might produce better results in the beginning.

Navi can give users non-trivial facts about their lives, using the information collected!

On-Line Learning Research

How do we minimize the number of answers a user is requested before he himself is given an answer?

A Tree Classifier

• Each tree node corresponds to a question in the questionnaire.

• A user answers all questions on a path from root to leaf.

• If we ask the user more questions, we gain important training data.

• Do we continue, or not?

Examples & Results

Examples:

Facebook

“Would you kill a small child in order to save the world?”

Decision tree and learning curve of J48 for the question “Are you a morning person?”

Learning Curve - J48 Decision Tree

“People who dislike children are usually nocturnal.”

“Would you kill a small child in order to save the world?”

Learning curves of different classifiers

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Examples:

A user answers all questions on a path from root to leaf.

The stronger the constraint on a "Target Question" the more non-trivial facts about one’s life can be learned.

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