

Dynamic Web Pages Personalization using Intimacy Theory

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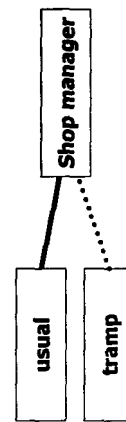
Introduction

- Face – to – face
- Object – medium – object
 - Digital interaction with Internet
- Setting Interpersonal Distance
 - Intimacy theory
 - Web interface development

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Research Background

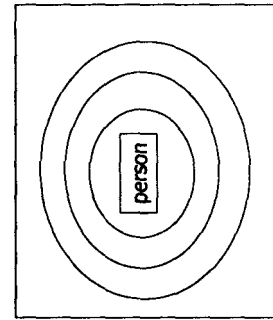
- Designer - , Web Master – based pages...
 - Personalization, categorization
- User - , customer – based pages
- Relations adjustment



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Proxemics

- People surround themselves with a "bubble" of personal space(Edward Hall, 1966)



Intimate distance: 0 ~ 1.5 feet(0.45 m)

Personal distance: 1.5 ~ 4 feet(1.2 m)

Social distance: 4 ~ 12 feet(3.6 m)

Public distance: more than 12 feet

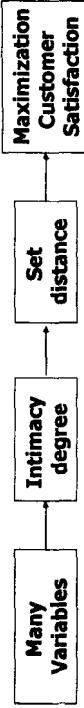
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Literature Review

- Intimacy between two objects (Pisaruk et al., 1990 / Fletcher et al., 1999)
- Virtual Intimacy (McKenna, 1999)
- Interpersonal distancing behavior in a behavioral game (Ickinger et al., 2001)
- Virtual Company (Forge, 2002)
- Customer Intimacy (Stem, 1997)

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Research Process



- Fields
 - Gender, Ages, Scholarship, Frequency, Satisfaction, Preference, Duration, Reputation, Expenditure, Security etc.
- Data Mining Tools Selection
 - Rule, relations, prediction

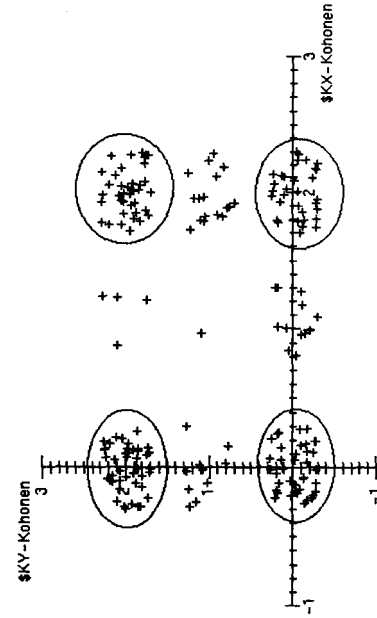
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Machine Learning Modeling

- Prediction (supervised learning)
 - Inputs → output
 - Neural networks, rule induction, regression
- Clustering (unsupervised learning)
 - Inputs → similarity
 - Kohonen networks, k-means
- Association
 - Input ↔ output
 - APRIORI, GRI

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Cluster Analysis

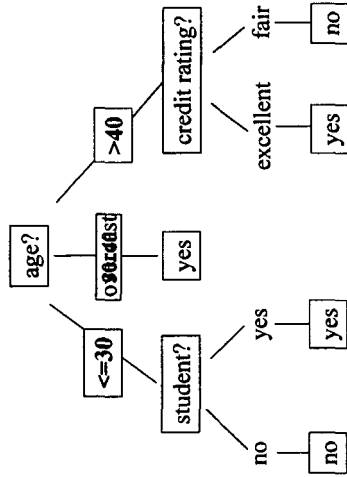


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Cluster Distribution

Cluster	Ratio(%)	units	Average to intimacy
A	20.86	34	2.41
B	25.77	42	3.02
C	24.54	40	3.85
D	28.83	47	2.87

A Decision Tree for Credit Approval



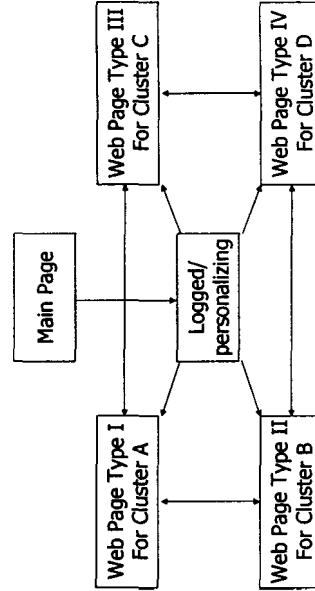
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Rule Set for each cluster

- **Cluster A**
 - if (rep. = good) And (time = 6 mon.) Or (rep. = v. good) Or (rep. = good) And (freq. = e.week)
- **Cluster B**
 - if (rep. = good) And (time = 1 yr.) Or (rep. = good) And (freq. = e.mon.) And (time = 1 yr.) Or (rep. = good) And (freq. = e.mon.) And (time = 1 mon.) Or (rep. = good) And (freq. = e.mon.) And (time = 2 yr.) Or (rep. = good) And (freq. = e.mon.) And (time = 6 mon.)
- **Cluster C**
 - if (rep. = good) And (freq. = 1 yr.) Or (rep. = good) And (freq. = over 1 yr.) Or (rep. = good) And (freq. = e.mon.) And (time = over 2 yr.) Or (rep. = good) And (freq. = e.day)
- **Cluster D**
 - if (rep. = good) And (time = 1 mon.) Or (rep. = good) And (time = 2 yr.) Or (rep. = good) And (time = over 2 yr.)

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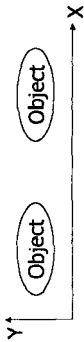
Dynamic Web Page Personalized



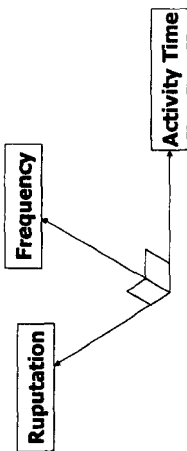
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Conclusion

- Physical Distance Measuring



- Mental Distance Measuring



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Contributions and limitations

- With attributions of each cluster, clustering persons or groups, providing web interface customization
- Creating real-time and dynamic web service or web design
 - ex) if a condition met, simultaneously web page changes.
 - membership period: one year → two years
 - reputation: good → very good
- It is difficult to do Regular Clustering.

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