





My PhD Experience...




**Sharif University of Technology**  
Bachelor's of Science in Computer Engineering


My PhD Experience...




**Software engineer @ a software company** ☹️  
E-business systems for dialogues between peers



My PhD Experience...



**California State University, East Bay**  
**Master of Science in Computer Science**



My PhD Experience...

Artificial Intelligence

Machine Learning      User modeling

Intelligent agents      Student Modeling

Neural Networks      Intelligent Tutoring Systems

Social Psychology      Cognitive Modeling

Women and minorities in Computer Science      Recommender Systems

Peer support      Information overload

**Social Navigation**



My PhD Experience...

## Social Navigation?



*"without knowing much, we joined the longest existing queue formed for a sushi restaurant. looking at faces of people (both young and old) filled with expectations despite the long wait in the cold weather, we were sure that the food would be worth every minute of waiting time. well, it was."*



My PhD Experience...

## Master's Thesis Project

Study problem of under representation of female and minority students in computer science

How online learning can improve the situation?

How social navigation can enrich online educational information systems?



My PhD Experience...



My PhD Experience...

## Continue on "Social Navigation"

Does it work?

Always?

For everyone?

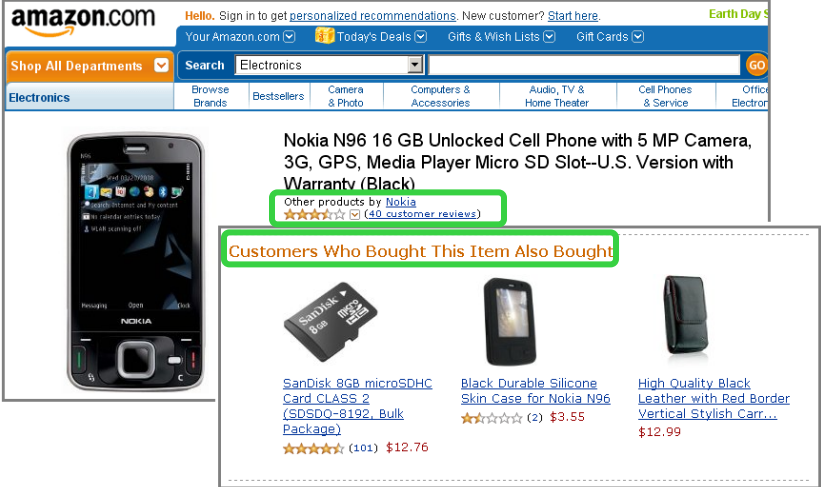
Building applications to study social navigation

Classroom studies

Lab experiments



My PhD Experience...



The screenshot shows the Amazon.com website with the search bar set to "Electronics". The main product displayed is the "Nokia N96 16 GB Unlocked Cell Phone with 5 MP Camera, 3G, GPS, Media Player Micro SD Slot--U.S. Version with Warranty (Black)". Below the product image, there is a section titled "Customers Who Bought This Item Also Bought" which recommends three items: a SanDisk 8GB microSDHC card, a Black Durable Silicone Skin Case for Nokia N96, and a High Quality Black Leather with Red Border Vertical Stylish Carry Case.

amazon.com Hello. Sign in to get personalized recommendations. New customer? Start here. Earth Day 5

Your Amazon.com Today's Deals Gifts & Wish Lists Gift Cards

Shop All Departments Search Electronics GO

Electronics Browse Brands Bestsellers Camera & Photo Computers & Accessories Audio, TV & Home Theater Cell Phones & Service Official Electron...

Nokia N96 16 GB Unlocked Cell Phone with 5 MP Camera, 3G, GPS, Media Player Micro SD Slot--U.S. Version with Warranty (Black)

Other products by Nokia  
★★★★☆ (40 customer reviews)

Customers Who Bought This Item Also Bought

SanDisk 8GB microSDHC Card CLASS 2 (SDSDQ-8192, Bulk Package)  
★★★★☆ (101) \$12.76

Black Durable Silicone Skin Case for Nokia N96  
★★★★☆ (2) \$3.55

High Quality Black Leather with Red Border Vertical Stylish Carry Case  
\$12.99

My PhD Experience...

## Social Navigation Support

- Visualizing individual or aggregated actions
  - Helping to filter out irrelevant information
  - Helping to decide where to go next
- Letting users reshapes the information environment
  - Adding social texture
  - Adding social affordance



My PhD Experience...

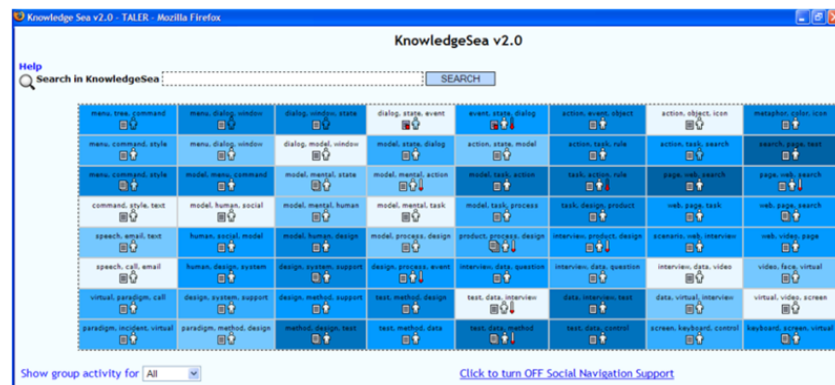
## Knowledge Sea

Helping students find relevant educational information among hundreds of online tutorial pages

Social Navigation Support based on past students' interaction with the system



My PhD Experience...



**Students visit pages with social navigation cues significantly more**



My PhD Experience...

## Course Agent

Community based course recommendation

Cumulative "community" ratings

Automating word-of-mouth process



My PhD Experience...

Spring 2006 List

Click to see the schedule

CourseAgent  
Adaptive Online Course Recommendation System

Control Panel Schedules Career Scope Course Catalog Faculty Register

Rasha's CourseAgent Help Log off

Schedule of spring 2006

Taken Courses, Planned Courses, Currently Taken Courses, Recommend by Advisor, Degree of Relevance to Career Goals

CRN	Course No	Title	Day	Time	Location	Instructor	Workload	Relevance	Action
2492	ISL 2240	PRACTICUM	sat			Richard Thompson			Plan It
16084	INESCL 2120	INFORMATION AND COGNITIVE THEORY	tue	6:00-8:50 P	302 CL	Paul Munro	III	○ ○ ○	Plan It
16077	INESCL 2130	DECISION ANALYSIS AND DECISION SUPPORT SYSTEMS	wed	6:00-8:50	411 IS	Mark Chaudhry	III	○ ○ ○	Plan It
16088	IS 2124	ETHICS IN THE INFORMATION SOCIETY	mon	3:00-5:50 P	403 IS	Toni Carbo			Plan It
16099	INESCL 2250	HUMAN FACTORS IN SYSTEMS	thu	6:00-8:50 P	411 IS	Michael Lerner	III	○ ○ ○	Register It
16056	INESCL 2430	INTERACTIVE SYSTEM DESIGN	wed	6:00-8:50 P	405 IS	Peter Boudzik	III	○ ○ ○	Evaluate It
16079	INESCL 2511	INFORMATION SYSTEMS ANALYSIS, DESIGN, AND EVALUATION	tue	6:00-8:50 P	411 IS	Glen Rex	I		Plan It
16011	INESCL 2610	DATA STRUCTURES	thu	3:00-5:50 P	501 IS	Roger Flinn	III	○ ○ ○	Plan It
16118	INESCL 2611	ALGORITHM DESIGN	tue	3:00-5:50 P	406 IS	Hassan Kato	III	○ ○ ○	Plan It
16065	INESCL 2720	GEOGRAPHIC INFORMATION SYSTEMS	thu	6:00-8:50 P	405 IS	Hassan Kato	III	○ ○ ○	Plan It

Difficulty level of the course  
Low , Medium , High

Degree of relevance to students' career goal  
Marginally relevant  
Relevant  
Very Relevant

Planned to take (can be registered)

Already taken (can be evaluated)





My PhD Experience...

## Under Contribution Problem

All good

but IF users provide feedback

Challenge: eliciting users feedback

- Implicit user behavior
  - Clicks, time spent
- Motivating contribution
  - Emphasize community benefits
  - Set goals for the user
  - Provide additional self benefit
  - Reward actions
  - Enhance user's reputation







My PhD Experience...

## Encouraging Contribution

Reward and Reputation based incentive for encouraging contribution for IBM social network site, "Beehive"

Rewards

- No reward for adding connections
- +5 points for each photo
- +10 points for each list
- +15 points for each comment
- +100 points for first profile item

Status	Number of Points
new bee 	<110
worker bee 	<500
busy bee 	<2000
super bee 	>=2000



## Result

### Employees were motivated

- Significant increase in contribution

- Increase in contributions to the site inspired other users to participate more

### Problems

- Gaming

- Discourage some users



## Dissertation Study

### When does social navigation works the best?

#### Controlled experiment

- Observation, Eye tracking, Log analysis

#### Comparing

- Performing tasks under time pressure or not

- Gender differences

- Interpersonal trust differences



## Result

A significant effect of time pressure  
Significant effect of interpersonal trust  
No significant gender differences



**Carnegie Mellon University**

Postdoctoral in Human Computer Interaction Institute



## Current Research

Studying user behavior in online communities  
and challenges of online communities

Applying social psychology theories

Understanding the theories

Understanding the differences of online  
communities versus traditional communities



## What is PhD all About?

- Exploring
- Learning to do research
- Learning to be creative and analytical
- Asking a lot of questions and trying to come up with approaches to tackle the questions
- Being frustrated
- Being happy
- Being proud



## Picking advisor

- Talk to ALL relevant faculty
- Try to do a project with the most relevant faculty early on (even a very small project)
- Research and personality (working style) match



## Explore

- Take courses from various areas
- Attend seminars, and talks
- Read a lot of papers
  - Take notes (You won't remember)
  - And be VERY systematic (a lot of good tools)



## Attend conferences

- Check for conferences in the area that are cheap to attend
- Ask your advisor if they can send you to relevant conferences
- Attend Doctoral Consortium



## Take advantages of resources

- Smart people
- Access to books, journals, magazines
- Access to software






## Research Methodology

- Read about different research methodologies to know which one applies to your research
- Take research design course (preferably second year)
- Pay attention to research methodologies when reading papers



## Statistics


- Take several courses
- Not too early
- Connect courses with projects and research
- Pay attention to statistical analysis when reading papers



My PhD Experience...

## Writing and presentation skills


- Taking writing courses
- Take presentations serious and practice with friends



My PhD Experience...

## Talk to Other PhD Students

- You are not ALONE!
- Other students experience same problems, challenges, frustrations, excitements, ...



My PhD Experience...

## Volunteer

- Student volunteer at conferences
- Organize academic events
  - Talks, seminars, workshops, ...




My PhD Experience...

## Internship


- Try to do several internships during your PhD
- Research labs, university labs, industry

My PhD Experience...



## Read PhD Comics

CORE PRINCIPLES IN RESEARCH




**OCCAM'S RAZOR**  
"WHEN FACED WITH TWO POSSIBLE EXPLANATIONS, THE SIMPLER OF THE TWO IS THE ONE MOST LIKELY TO BE TRUE."

**OCCAM'S PROFESSOR**  
"WHEN FACED WITH TWO POSSIBLE WAYS OF DOING SOMETHING, THE MORE COMPLICATED ONE IS THE ONE YOUR PROFESSOR WILL MOST LIKELY ASK YOU TO DO."

JOE CUM © 2009  
WWW.PHDCOMICS.COM

My PhD Experience...



## Have a life!

- It will never get easier! 😊
- Take fun courses
- Get enough sleep
- Leave work for a day when you are too frustrated



## Useful Resources & Tools

- CiteULike (<http://www.citeulike.org/>)
- Professional groups on social network sites such as Facebook, and LinkedIn
- Tools
  - SPSS: statistical analysis
  - WinEdt: writing papers
  - Notepad++ : a good editor
  - Very useful web portal (<http://www.sis.pitt.edu/~tloboda/res/prod/web-portal/>)



## Questions?

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