Welcome

Timothy Bickmore
Boston University School of Medicine

Overview

- Motivation
  - Societal
  - Scientific
  - Community
- Some interesting research directions
- Logistics
Motivation: Societal Perspective

- This is important work

- US Healthcare expenditures $1.2T
- 60% attributable to behavioral problems
  - Tobacco kills 435,000 people per year in US
  - Poor diet & physical inactivity kill 400,000/year in US
  - 64% of US adults are overweight or obese
  - 40% of chronic disease patients (45% of US) are non-adherent or poorly adherent

- Aging population
  - Chronic disease prevalence increasing
  - Shortage of healthcare workers
  - “Aging in place”
Motivation: Scientific Perspective

- “Gold standard” of health behavior change & education is 1-on-1 counseling
- Emulating this as closely as possible implies autonomous systems that interact with patients using dialogue (and NvB)
- Vast literature on provider-patient communication (AAPP)

Motivation: Scientific Perspective

- Very rich set of phenomena to study
  - Negotiation of treatment regimens
  - Relational communication
  - Affective/empathetic communication
  - Long-term interactions
  - Long-term engagement
  - Understanding pt's disease model
  - Patient activation
Motivation
Community Perspective

- 80+ researchers
- 10++ companies
  - Pharmaceuticals
  - Gaming
  - AI
  - Health media
  - Robotics

Motivation:
Community Perspective

- Some Active Research Areas
  - Health Behavior Change
  - Health Education
  - Medication Adherence
  - Chronic Disease Self-Management
  - Assisted Cognition/Cognitive Orthotics
  - Eldercare
Example dialogue system: Medication Advisor

Motivation: Community Perspective

- Professional organizations
  - American Medical Informatics Association
    - NLP SIG
    - Consumer Informatics SIG
  - Society for Behavioral Medicine
    - Behavioral Informatics SIG
BG Pilot (helps kids with diabetes keep track of blood glucose, in a game format), (PC) 1989
AIDS Avenger, (PC) 1991
Captain Novolin (diabetes self-management), (SNES) 1992
Rex Ronan (smoking prevention), (SNES) 1993
Packy & Marlon (diabetes self-management), (SNES) 1994; (PC) 1998
Bronkie the Bronchiasaurus (asthma self-management), (SNES) 1995; PC 1999
Alter Ego (Activision by Dr. Peter Favaro)
Mind Mirror (EA by Timothy Leary)

ResponDesign Yourself!Fitness
Yourself!Fitness brings the expertise of a certified personal trainer and nutritionist into your home to guide you through a personalized health and fitness program.

forum headlines
1. "Lose your fat and tone your body with these tips!"
2. "Tips for a healthy lifestyle at work!"
3. "Tips for a healthy lifestyle at work!"
4. "Tips for a healthy lifestyle at work!"
5. "Tips for a healthy lifestyle at work!"
6. "Tips for a healthy lifestyle at work!"
7. "Tips for a healthy lifestyle at work!"
8. "Tips for a healthy lifestyle at work!"
9. "Tips for a healthy lifestyle at work!"
10. "Tips for a healthy lifestyle at work!"
Interesting future directions

Relational Agents
Caring Machines

Interesting Future Directions

MaintainPhysicalActivity
HavePAConversation
AssessStage
AssessBehavior
AskStage
ProblemSolve
SetGoals
Interesting Future Directions

Why don’t you think you can walk now?
No time.
I don’t feel like it.
It’s raining.

Accelerometer
Wireless Link
Interesting future directions
NurseBot

U of Pittsburg
School of Nursing
CMU
U of Michigan
Motivation: Why a symposium?

- Critical mass of researchers
- Common interests, tools, data, methods
- AAAI Symposia a great venue

Logistics: Schedule

All 8 Symposia on common break schedule.

Must keep to schedule to get our snacks.

Suggest:
- Leave 10 minutes Q&A
- Notices at 10, 5
- Stage hook at 0
## Friday

**Breaks:** Ballroom level  **Reception:** Regency Ballroom A/B

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Welcome &amp; Introduction (Tim Bickmore)</td>
</tr>
<tr>
<td>10:30</td>
<td>Keynote: Experiences with Telephone-Linked Care (Rob Friedman)</td>
</tr>
</tbody>
</table>

**Session Chair:** Toni Giorgino
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00-12:30</td>
<td>Paper: A Pedagogical Agent for Psychosocial Intervention on a Handheld Computer (Lewis Johnson)</td>
</tr>
<tr>
<td></td>
<td>Paper: Retrofitting Synthetic Dialog Agents to Game Characters for Lifestyle Risk Training (Susann Luperfoy)</td>
</tr>
<tr>
<td></td>
<td>Paper: The Transonics Spoken Dialogue Translator: An aid for English-Persian Doctor-Patient Interviews (David Traum)</td>
</tr>
</tbody>
</table>

**2:00-3:30** Demos (David Traum, Susann Luperfoy, Kevin Ludena, Tim Bickmore)

**Session Chair:** Stacy Marsella
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00-5:30</td>
<td>Paper: A Triage Information Agent (TIA) based on the IDA Technology (Stan Franklin)</td>
</tr>
<tr>
<td></td>
<td>Paper: A Synthetic Character Application for Informed Consent (Rob Hubal)</td>
</tr>
<tr>
<td></td>
<td>Keynote: Wearable Relational Devices (Rosalind Picard)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00-7:00</td>
<td>Reception</td>
</tr>
</tbody>
</table>

## Saturday

**Breaks:** Ballroom level  **Plenary:** Regency Ballroom A/B

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Keynote: Experiences with HealthBuddy (Geoffrey Clapp)</td>
</tr>
<tr>
<td>10:30</td>
<td>Paper: The Role of “Etiquette” in an Automated Medication Reminder (Peggy Wu)</td>
</tr>
</tbody>
</table>

**Session Chair:** Lewis Johnson
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00-12:30</td>
<td>Paper: Communication of Uncertainty in Clinical Genetics Patient Health Communication Systems (Nancy Green)</td>
</tr>
<tr>
<td></td>
<td>Paper: Voice Pathology Assessment based on a Dialogue System and Speech Analysis (Rosalyn Moran)</td>
</tr>
<tr>
<td></td>
<td>Paper: Detection of Neuropsychiatric States of Interest in Text (Robert Bechtel)</td>
</tr>
</tbody>
</table>

**2:00-3:30** Challenge problem: Life-long engagement for chronic disease management (Bickmore)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00-5:30</td>
<td>Paper: Integrating Public Health and Computer Science Theoretical Perspectives for Developing Tailored Health Messages (Rita Kukafka)</td>
</tr>
<tr>
<td></td>
<td>Paper: E-Health as Dialogue: Communication and Quality of Cancer Care (Linda Harris, Gary Kreps)</td>
</tr>
</tbody>
</table>

**Panel:** What's Unique About Health Dialogue? (Moderator: Susann Luperfoy)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00-7:30</td>
<td>Plenary Session (Candy Sidner presenter)</td>
</tr>
<tr>
<td>Time</td>
<td>Session details</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
</tr>
</tbody>
</table>
            Paper: An Assistive Conversation Skills Training System for Caregivers of Persons with Alzheimer's Disease (Nancy Green)  
            Paper: Evaluation and Usage Patterns in the Homey Hypertension Management Dialog System (Toni Giorgino) |
| 11:00-12:30 | Panel: Towards a Community - Shared Tools, Corpora and Dialogue Scripts (Moderator: Neal Lesh)  
              Wrapup & Future Actions (Bickmore) |