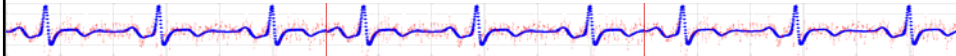


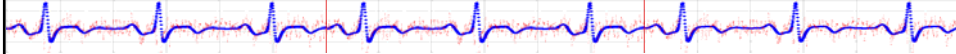
AAAI Fall Symposium on Dialogue Systems for Health Communication



Welcome

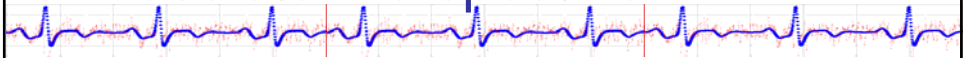
Timothy Bickmore
Boston University School of Medicine

Overview



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

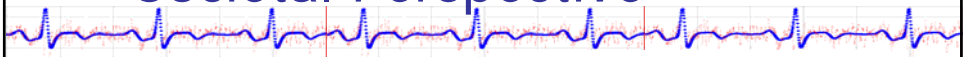
Motivation: Societal Perspective



- 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: Societal Perspective



A screenshot of the MIT FitTrack software interface. The window title is "MIT FitTrack" and "Exercise Advisor". It features a green progress bar at the top, followed by a prompt to "Log your activity for Tuesday, April 30". Below this are input fields for "Went to bed at:" and "Got out of bed at:", each with a time selection dropdown. There are also three rows for "Morning Activity" with intensity levels: "Moderate", "Hard", and "Very Hard", each with "Hour" and "Minutes" dropdowns. At the bottom, there are three radio button options: "No, no problems this week.", "Yes, I had a few problems exercising this week.", and "Yes, I had some significant problems exercising this week." The interface is clean and functional, with a white background and blue accents.

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

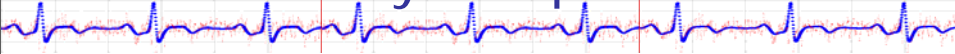
- Very rich set of phenomena to study
 - Negotiation of treatment regimens
 - Relational communication
 - Affective/empathetic communication
 - Long-term interactions
 - Long-term engagement
 - Understanding pt's disease model
 - Patient activation

Motivation Community Perspective



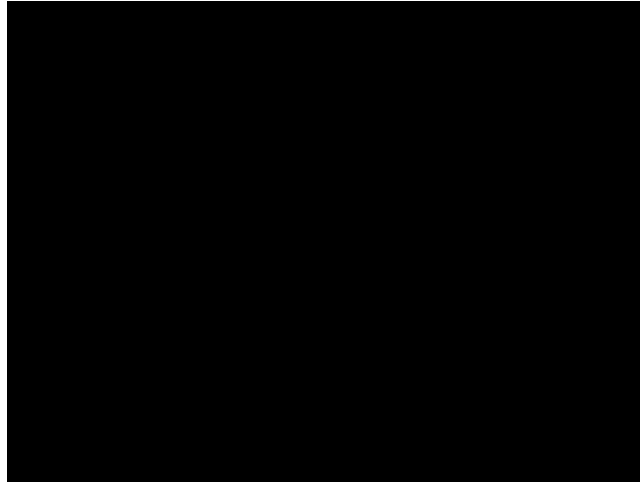
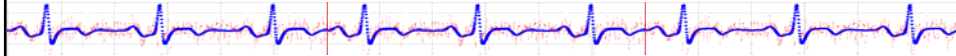
- 80+ researchers
- 10++ companies
 - Pharmaceuticals
 - Gaming
 - AI
 - Health media
 - Robotics

Motivation: Community Perspective



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

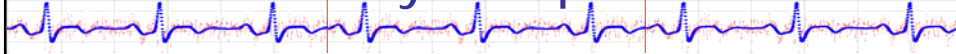
Example dialogue system: Medication Advisor



George Ferguson
Univ of Rochester
~2002

Medication Adherence

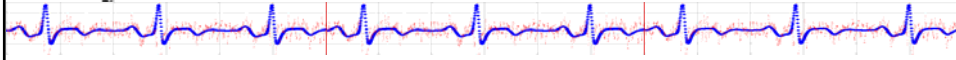
Motivation: Community Perspective



- Professional organizations
 - American Medical Informatics Association
 - NLP SIG
 - Consumer Informatics SIG
 - Society for Behavioral Medicine
 - Behavioral Informatics SIG



www.gamesforhealth.org



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

yourselffitness.:

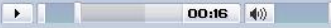
commitment.:

community.:

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.



see the big picture.:

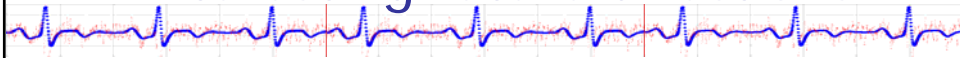


maya
personal trainer

forum headlines

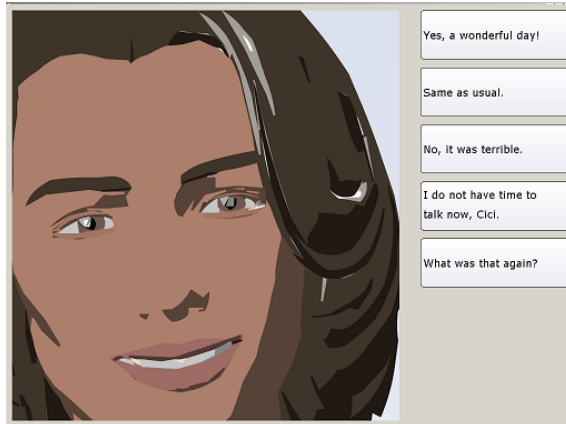
- .: "Review from IGN"
- .: "RE: Goal Update for adamdick!"
- .: "RE: Eating Healthy at Work"
- .: "RE: conditioning"
- .: "Instead of Avoiding Certain Foods - Seek Out the Good Stuff"
- .: "Embrace Your Shape... For Real This Time"
- .: "RE: BHANGRA Rhythms Are the Newest Sweaty Aerobics Rage"

Interesting future directions

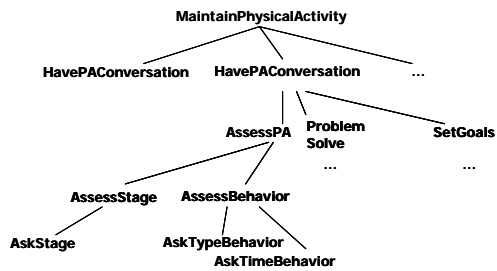
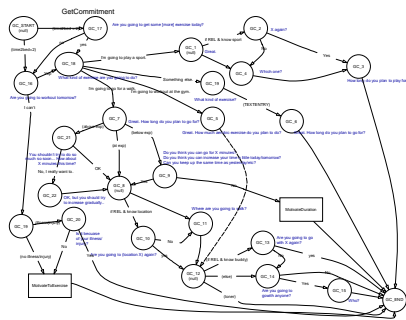
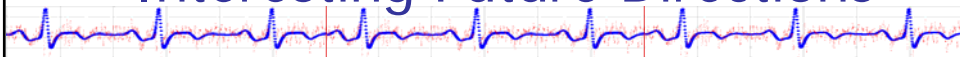


Relational Agents

Caring Machines



Interesting Future Directions



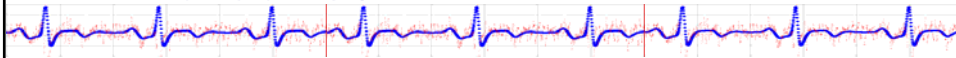
Interesting Future Directions



Interesting Future Directions



Interesting future directions NurseBot

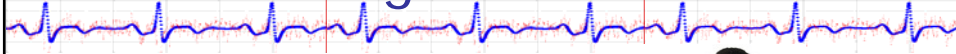


U of Pittsburg
School of
Nursing

CMU

U of
Michigan

Interesting future directions



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.

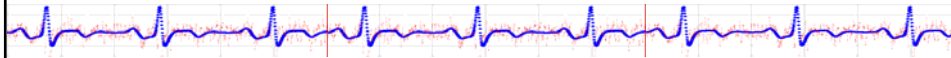
Suggest:

- Leave 10 minutes Q&A
- Notices at 10, 5
- Stage hook at 0



Friday

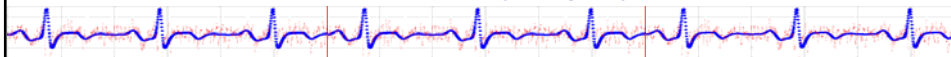
Breaks: Ballroom level Reception: Regency Ballroom A/B



- 9:00-** Welcome & Introduction (Tim Bickmore)
- 10:30** Keynote: Experiences with Telephone-Linked Care (Rob Friedman)
-
- Session Chair: Toni Giorgino
- 11:00-** Paper: A Pedagogical Agent for Psychosocial Intervention on a Handheld Computer (Lewis Johnson)
- 12:30** Paper: Retrofitting Synthetic Dialog Agents to Game Characters for Lifestyle Risk Training (Susann Luperfoy)
- Paper: The Transonics Spoken Dialogue Translator: An aid for English-Persian Doctor-Patient Interviews (David Traum)
-
- 2:00-3:30** Demos (David Traum, Susann Luperfoy, Kevin Ludena, Tim Bickmore)
- Paper: Using a Domain-Independent Reactive Planner to Implement a Medical Dialogue System (Reva Freedman)
-
- 4:00-5:30** Session chair: Stacy Marsella
- Paper: A Triage Information Agent (TIA) based on the IDA Technology (Stan Franklin)
- Paper: A Synthetic Character Application for Informed Consent (Rob Hubal)
- Keynote: Wearable Relational Devices (Rosalind Picard)
-
- 6:00-7:00** Reception

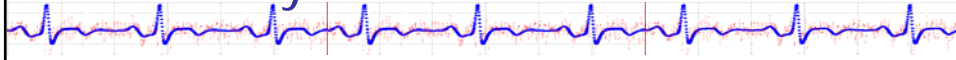
Saturday

Breaks: Ballroom level Plenary: Regency Ballroom A/B



- 9:00-** Keynote: Experiences with HealthBuddy (Geoffrey Clapp)
- 10:30** Paper: The Role of "Etiquette" in an Automated Medication Reminder (Peggy Wu)
-
- Session Chair: Lewis Johnson
- 11:00-** Paper: Communication of Uncertainty in Clinical Genetics Patient Health Communication Systems (Nancy Green)
- 12:30** Paper: Voice Pathology Assessment based on a Dialogue System and Speech Analysis (Rosalynd Moran)
- Paper: Detection of Neuropsychiatric States of Interest in Text (Robert Bechtel)
-
- 2:00-3:30** Challenge problem: Life-long engagement for chronic disease management (Bickmore)
- Paper: Integrating Public Health and Computer Science Theoretical Perspectives for Developing Tailored Health Messages (Rita Kukafka)
-
- 4:00-5:30** Paper: E-Health as Dialogue: Communication and Quality of Cancer Care (Linda Harris, Gary Kreps)
- Panel: What's Unique About Health Dialogue? (Moderator: Susann Luperfoy)
-
- 6:00-7:30** Plenary Session (Candy Sidner presenter)

Sunday



Session chair: Stacy Marsella

9:00-10:30 Paper: Talking Telemedicine: Is the Interactive Voice-Logbook Evolving into the Cornerstone of Diabetes Healthcare? (Leslie-Ann Black)

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)