



*Call for Participation*  
**2012 AAAI Spring  
Symposium Series**

March 26–28, 2012  
Stanford University, Stanford, California

*Sponsored by the Association for the Advancement of Artificial Intelligence  
In cooperation with Stanford University*

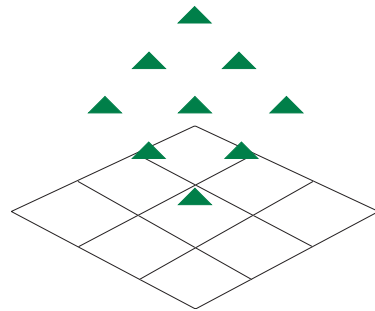
sss12@aaai.org  
[www.aaai.org/Symposia/Spring/](http://www.aaai.org/Symposia/Spring/)

## Deadlines Common to All Symposia

- ❑ October 7, 2011: Submission Deadline
- ❑ November 4, 2011: Notification of Acceptance
- ❑ January 20, 2012: Final Electronic Camera-Ready Copy Due

## Formatting Guidelines

- ❑ [www.aaai.org/Publications/Author/author.php](http://www.aaai.org/Publications/Author/author.php)



The Association for the Advancement of Artificial Intelligence, in cooperation with Stanford University's Department of Computer Science, is pleased to present the 2012 Spring Symposium Series, to be held Monday through Wednesday, March 26–28, 2012 at Stanford University. The titles of the six symposia are as follows:

- AI, The Fundamental Social Aggregation Challenge, and the Autonomy of Hybrid Agent Groups
- Designing Intelligent Robots: Reintegrating AI
- Game Theory for Security, Sustainability and Health
- Intelligent Web Services Meet Social Computing
- Self-Tracking and Collective Intelligence for Personal Wellness
- Wisdom of the Crowd

An informal reception will be held on Monday, March 26. A general plenary session, in which the highlights of each symposium will be presented, will be held on Tuesday, March

27. Symposia will be limited to between forty and sixty participants. Each participant will be expected to attend a single symposium. AAAI technical reports or working notes will be prepared and distributed to participants in each symposium. In addition to invited participants, a limited number of interested parties will be able to register in each symposium on a first-come, first-served basis. Registration information will be available in December. To obtain registration information, write to:

- AAAI Spring Symposium Series  
445 Burgess Drive, Suite 100  
Menlo Park, CA 94025-3442 USA  
Voice: 650-328-3123  
Fax: 650-321-4457  
[sss12@aaai.org](mailto:sss12@aaai.org)  
[www.aaai.org/Symposia/Spring/sss12.php](http://www.aaai.org/Symposia/Spring/sss12.php)

## Submission Dates

- Submissions for the symposia are due on October 7, 2011
- Notification of acceptance will be given by November 4, 2011
- Material to be included in the working notes or technical report of the symposium must be received by January 20, 2012

Please see the appropriate section in each symposium description for specific submission requirements.

## Formatting Requirements

While submission format may be more flexible (see individual symposium listings for details), all papers published in the AAAI Spring Symposium must be formatted in AAAI Style. The technical report author instructions may be found at [www.aaai.org/Publications/Author/author.php](http://www.aaai.org/Publications/Author/author.php). The AAAI author kit is available from [www.aaai.org/Publications/Templates/AuthorKit.zip](http://www.aaai.org/Publications/Templates/AuthorKit.zip)

# AI, The Fundamental Social Aggregation Challenge, and the Autonomy of Hybrid Agent Groups

The control of autonomous humans, machines and robots working together as hybrid agent groups is an important problem for AI. Today, the war in Afghanistan has hundreds of mobile robots aloft, on land, or under the sea. But these agents are socially passive.

Current paradigms require a team of human operators for each mobile platform, with no social aggregation among non-human agents, precluding the formation of autonomous hybrid teams. A “social fabric” would be able to leverage heterogeneous sensing to enhance situational awareness, improving the capabilities of hybrid teams during decision-making. The literature (for example, *Nature*, 2011; NSF’s visions for the future of social-behavioral-economic sciences) underscores the fundamental challenge of aggregation for social science. How does a collection of individuals become an autonomous group, team, or organization?

Unlike objects in physical reality, each human agent sees events and actions in social reality while embedded in different locations and under the influence of others; agents differentially collect, process, send, receive, channel and block information while they influence each other.

Uncertainty is a consideration, with two probable causes. One is based on measurement, the other on degrees of freedom (complexity). The problem of aggregation addresses the former. It reflects the physical influences of interdependence (bi-stability and multi-stability; for example, two or more sides exist to every story).

Hybrid agent teams must report on situations. Reports by humans are often reduced to ordinal data, the foundation of modern economic theory that Barzalai and colleagues believe is an error. Common examples of non-ordinal interdependent effects are economic panic, real-estate bubbles, hostile mergers, and political gridlock.

Game theory initiated the mathematical study of interdependence among multiple agents. Yet, aggregating individual data into group (team) data remains unsolved. We must be able to prove mathematically that a

group is different from the individuals who comprise it.

Solving the challenge of interdependence is essential for the effective and efficient engineering of autonomous multi-agent teams. Once solved, hybrid teams could multitask to solve problems with firefighting, police work, reactor meltdowns, future wars, or while stationed on Mars and more. A hybrid leader would be able to efficiently control multiple autonomous robots, machines and humans as they solve problems together even under life and death situations.

## Submissions

Interested participants should submit either full papers (6 pages maximum) or extended abstracts (2 pages maximum). Please submit papers in AAAI-style ([www.aaai.org/Publications/Author/author.php](http://www.aaai.org/Publications/Author/author.php)) via [www.easychair.org/conferences/?conf=aaaiss2012](http://www.easychair.org/conferences/?conf=aaaiss2012).

## Organizers

W. F. Lawless (Paine College; [w.lawless@paine.edu](mailto:w.lawless@paine.edu)) and Don Sofge (Naval Research Laboratory, Navy Center for Applied Research in Artificial Intelligence; [don.sofge@nrl.navy.mil](mailto:don.sofge@nrl.navy.mil))

## For More Information

For more information, contact the organizers at the e-mails listed previously.

# Designing Intelligent Robots: Reintegrating AI

The goal of building intelligent robots has been a motivating problem for generations of AI researchers, going back at least as far as Shakey the robot in 1966. Creating such a robot is both the fully realized expression of the original impulse behind AI and an immensely rich source of research questions that address real-world problems.

However, AI is a fragmented field: well-developed and largely independent research communities exist for learning, planning, reasoning, language, perception, and control. Since the challenges posted by each of these subfields are immense, most researchers have found it necessary to devote their careers to specializing in a single subfield. While immense progress has been made in each of these subfields in the last few decades, it remains unclear how they can be integrated to produce an intelligent robot. Unifying these disparate technologies will open up new avenues of research and create new application opportunities. Therefore, we believe that integration should be considered a valid research endeavor in its own right.

This symposium aims to bring together a diverse and multidisciplinary group of researchers interested in the specific objective of designing intelligent robots. The goal of the symposium is to provide common ground for their diverse interests and thereby actively encourage the integration of various AI techniques. We also hope to foster an active discussion about setting a realistic and feasible medium-term objective for integrative research so that progress can be made. The symposium will include invited talks as well as a poster session with ample time for discussion.

## Submissions

Interested participants may submit either full-length papers (up to 6 pages in AAAI format) or short papers/extended abstracts (2 pages) in PDF format to [dir.aaai.ss12@gmail.com](mailto:dir.aaai.ss12@gmail.com).

## Organizing Committee

George Konidaris (Massachusetts Institute of Technology), Byron Boots (Carnegie Mellon University), Stephen Hart (GM), Todd Hester (University of Texas, Austin), Sarah Osentoski (Bosch Research and Technology Center), David Wingate (Massachusetts Institute of Technology).

## For More Information

For more information, see the supplementary symposium web site ([people.csail.mit.edu/gdk/dir](http://people.csail.mit.edu/gdk/dir)).

There is a large and growing interest in applying game theory to security, sustainability, and health; which are grand challenges for engineering in the 21st century. In fact, the last five years have seen game theory based systems developed and applied to real-world domains. For example, software assistants have been developed for randomized patrol planning for the Los Angeles International Airport police, the Federal Air Marshal Service and the United States Transportation Security Administration. Also game theory has been utilized for decentralized control, operation and management of future generation electricity.

While there has been significant progress, there still exist many major challenges facing the design of effective approaches to deal with the difficulties in security, sustainability, and health. Addressing these challenges requires collaboration from different communities including artificial intelligence, game theory, operations research, social science, and psychology. This symposium is structured to encourage a lively exchange of ideas between members from these communities.

## Topics

Topics of interest include but are not limited to:

- Game theory foundations
- Algorithms for scaling to very large games
- Human factors and intelligent user interfaces
- Agent/human interaction for preference elicitation and optimization
- Risk analysis
- Decision making under uncertainty
- Multiagent simulation
- Software development
- Modeling and Evaluation
- Distributed control in energy systems

This symposium will feature presentations for all accepted papers. There will be invited talks and a panel discussion by experts from a variety of relevant fields.

## Submissions

Full papers (8 pages maximum) on completed original work and short papers (4 pages maximum) on ongoing work or descriptions of problems and proposed approaches/solutions are invited. We also welcome survey papers and demos of practical systems. Submit papers in AAAI-style ([www.aaai.org/Publications/Author/author.php](http://www.aaai.org/Publications/Author/author.php)) via the Easychair website ([www.easychair.org/conferences/?conf=gtssh2012](http://www.easychair.org/conferences/?conf=gtssh2012)).

## Organizing Committee

Bo An (University of Southern California, [boa@usc.edu](mailto:boa@usc.edu)), Vincent Conitzer (Duke University, [conitzer@cs.duke.edu](mailto:conitzer@cs.duke.edu)), Manish Jain (University of Southern California, [manishja@usc.edu](mailto:manishja@usc.edu)), Sarit Kraus (Bar-Ilan University, [sarit@cs.biu.ac.il](mailto:sarit@cs.biu.ac.il)), Sarvapali Ramchurn (University of Southampton, [sdr@ecs.soton.ac.uk](mailto:sdr@ecs.soton.ac.uk)), Milind Tambe (University of Southern California, [tambe@usc.edu](mailto:tambe@usc.edu))

## For More Information

For more information, see the supplementary symposium web site ([teamcore.usc.edu/GT-Symposium.htm](http://teamcore.usc.edu/GT-Symposium.htm)).

Development of web services faces significant challenges concerning quality of design, development costs, endorsement of services by the community, integration and interoperability of services from different domains and effective sharing of services among users and developers. This AAAI spring symposium will bring together two lines of research whose combination can help in dealing with these issues, namely intelligent web services and social computing research. Social computing is a promising approach that can help to understand user and community behaviour and related computational challenges around web services development.

## Topics

The spring symposium will seek contributions on topics related to emerging concepts, technologies and development practices that relate to intelligent web services and social computing research. Topics include the following:

- Social and technical requirements for collaborative web service development
- Platforms and user interfaces for crowdsourcing web service development, and verification
- Techniques for contextualized reviewing and rating of web services
- Methods to incentivize, boost, and influence community participation throughout the life-cycle of web services
- Methods to define and mashup service descriptions with linked data vocabularies
- Systems and techniques for context- and social-based recommendation of web services
- Methods for collaborative authoring of semantic annotations (for example RDFa, SAWSDL)
- Argumentation frameworks and norms for reaching consensus on service implementation, description, and integration

- Trust in collaborative web service construction
- Mining, monitoring and analysis of behaviour and activities of web service online communities (such as ProgrammableWeb, and Seekda)
- Analysis of web service usage patterns and associated social and technical parameters
- Extraction of web service descriptions from tags
- Case studies for use of social computing to construct and manage web services

The symposium will include presentations of short and long papers, research proposals, demonstrations, invited speakers, panel and open discussions. Invited speakers include John Musser (ProgrammableWeb), Steffen Staab (University of Koblenz, Germany), and Fausto Giunchiglia (University of Trento, Italy). Researchers working in areas of semantic web, web services, linked data, intelligent agents, social networks, social computing or web science will be encouraged to participate in the symposium.

## Submissions

Please submit your abstracts in PDF by email to [tomas@vitvar.com](mailto:tomas@vitvar.com). Abstracts should describe reports, case studies, research results or state of the art in the area of intelligent web services and social computing research and should not exceed 400 words. Authors of accepted abstracts will be invited to the symposium and must then prepare full versions of their papers in AAAI format.

## Chairs

Tomas Vitvar (Czech Technical University), Harith Alani (Knowledge Media Institute, Open University, UK), David Martin (Apple)

## For More Information

For more information, see the supplementary symposium web site ([vitvar.com/events/aaais12](http://vitvar.com/events/aaais12)).

# Self-Tracking and Collective Intelligence for Personal Wellness

How can we quantify our health? How can our health data be integrated into the personal medicine, improve wellness, and contribute to scientific discovery? These are the significant questions to improve our daily life. To tackle this issue, our symposium aims at improving personal wellness by integrating two approaches. The first approach focuses on the recent new self-tracking technologies for monitoring personal health conditions such as sleep, diet, exercise, vital data, and for analyzing the personal medical data and personal genome data.

The second approach, on the other hand, focuses on the collective intelligence as the potential resources to find useful knowledge for personal wellness from knowledge from others. To tackle the above significant issues, our symposium focuses on AI techniques as the potential approach to give us new possibilities for creating new values in our future personal wellness. This symposium will bring together an interdisciplinary group of researchers to discuss possible solutions for personal wellness.

## Topics

The scope of our interests include, but are not limited to the following:

- *Self-tracking for personal wellness* (Sleep monitoring, diet monitoring, vital data monitoring, personal medicine, personal genome)
- *Collective intelligence for personal wellness* (Data mining for scientific discovery on collective data, biomedical informatics and systems biology, data visualization)
- *Field study for personal wellness* (life log analyses, lifestyle related disease improvement experiment, sleep improvement experiment)

- *Application for personal wellness* (life log applications, wellness service application, medical recommendation system, care support system for aged person, web service for personal wellness)
- *Community platform for personal wellness* (Citizen science platform, do it yourself (DIY) trials, quantified Self business model)

The symposium is organized by the invited talks, presentations, and posters and interactive demos.

## Submissions

The electronic version of your paper (up to 8 pages) should be send to [aaai2012-PW@cas.hc.uec.ac.jp](mailto:aaai2012-PW@cas.hc.uec.ac.jp) by October 7th, 2011.

## Primary Contact

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## Organizing Committee:

Takashi Kido, Cochair (Riken Genesis Company Ltd. (Japan); [kido.takashi@gmail.com](mailto:kido.takashi@gmail.com)) and Keiki Takadama (The University of Electro-Communications (Japan); [keiki@inf.uec.ac.jp](mailto:keiki@inf.uec.ac.jp))

## For More Information

For more information, see the supplementary symposium web site ([mednlp.jp/AAAI2012](http://mednlp.jp/AAAI2012)).

Crowdsourcing provides a convenient and increasingly popular method for gathering large amounts of data and annotations. Amazon's Mechanical Turk and CrowdFlower, games such as the ESP Game, and requests for free annotation help such as LabelMe are just a few examples of crowdsourcing efforts. These attempts have taught us many lessons and brought up yet more questions. How can we most effectively elicit the information we need from a distant and potentially anonymous workforce? What kind of workforce is required for different tasks such as user studies and data set labeling? How can we train and evaluate workers?

This symposium will bring together researchers from robotics, user interfaces, games, computer vision, and other disciplines exploring the core scientific research challenges of crowdsourcing. This symposium will seek to facilitate interaction among researchers and work toward formulating a set of guidelines for future crowdsourcing endeavors.

## Topics

Topics of interest include, but are not limited to the following:

- *Applications for crowdsourcing*: data set annotation, user studies, search relevance, content authoring, and integration of crowdsourcing and AI
- *Reward strategies*: no direct compensation (the LabelMe data set), low (Mechanical Turk) or high per-task compensation, and making the task fun, such as by using games (the ESP Game).
- *Methods for selecting an appropriate workforce*: recruiting experts, creating experts and trusted workers, learning worker expertise, changing compensation models, and requiring workers to pass tests.
- *Methods for efficiently evaluating results*: no evaluation, evaluating each task by hand, allowing workers to evaluate each other, and automated evaluation.

The symposium will combine a variety of activities to facilitate interaction among participants from different communities and discussion of key challenges, including invited talks, individual technical presentations by researchers to serve as case studies, open panel discussions and brainstorming around different applications and modalities, and working groups to create basic guidelines and evaluation strategies, providing a common starting point for future development and evaluation.

## Invited Talks

Confirmed speakers include Ed Chi (Google Inc.) and Rob Miller (Massachusetts Institute of Technology).

## Submissions

We invite contributions in the form of full papers (6 pages) and extended abstracts (2 pages). Participants will also be invited to fill in a 1-page position paper including a brief author bio, research interests, and a discussion of research challenge(s) in crowdsourcing. Details regarding submissions are available at the symposium website.

## Chairs

Caroline Pantofaru (Willow Garage), Sonia Chernova (Worcester Polytechnic Institute), Alexander Sorokin (CrowdFlower)

## For More Information

For more information, see the supplementary symposium web site ([www.willowgarage.com/workshops/2012/wisdom\\_of\\_the\\_crowd](http://www.willowgarage.com/workshops/2012/wisdom_of_the_crowd)).