



## Overview for Corporate Members

### **INTRODUCTION**

Artificial Intelligence comprises the complete loop from sensing to perception, learning, communications, and action. Stanford's Artificial Intelligence Lab is devoted to the design of intelligent machines that serve, extend, expand, and improve human endeavor, making life more productive, safer, and healthier.

These intelligent machines will learn everything about anything using multi-sensory information and the entire cyber world of information and knowledge. They will reason deeply and communicate like a human. They will act with situational awareness.

### **AFFILIATES PROGRAM AND MEMBER BENEFITS**

AI is an integral part of many exciting business and consumer tools such as speech recognition, semantic search, recommendation systems, machine translation, and 3D sensing in consumer gaming. The AI Lab Affiliates Program brings all of these efforts together and provides a structure for industry to engage effectively. The affiliates program represents a new era of close engagement with a small number of major companies. It supports corporate interaction through organized retreats, an Advisory Board, and informal interactions. The goal is bidirectional transfer of knowledge and excitement!

Corporate members provide \$200,000 per year of unrestricted support with an expected three-year commitment. These funds will be used to support the research activities of faculty and graduate students as well as the other activities of the affiliates program. Members receive substantial benefits:

- Early, facilitated access to research, faculty, and students
- Invitations to all retreats, conferences, and seminars
- Custom hosted visits to Stanford for discussion of research topics
- Participation in research collaborations
- Networking with AI Lab researchers and corporate members
- Student recruiting opportunities
- Opportunity to establish a visiting researcher at Stanford (additional charges apply)
- Facilitated access to AI Lab research results

Each member of the affiliates program may select up to two focus groups for a deeper engagement including periodic formal and informal interactions. A focus group is an individual professor or one of the AI Lab's major research areas (robotics, NLP, computer vision, machine learning, and computational genomics). The Agreement is considered renewed automatically upon each subsequent annual payment, and may be terminated by written notice from either Stanford University or the company to the other.

## AI LAB FACULTY AND RESEARCH AGENDA

The 18 faculty members of the Stanford AI Lab are changing the world. Their research includes deep learning and machine learning; robotics; natural language processing; vision, haptics, and sensing; big data and knowledge base; and genomics, medicine, and healthcare. The approach is personalized, adaptive, anticipatory, communicative, and context aware.

### Stanford AI Lab Faculty

- **Serafim Batzoglou**, Associate Professor of Computer Science. Applications of computer science to molecular biology: alignment algorithms, comparative genomics, sequence assembly, gene regulation, and networks of protein interactions.
- **Gill Bejerano**, Associate Professor of Developmental Biology, Computer Science, and Pediatrics (Medical Genetics). Genome diagnostics, diagnostics automation, comparative genomics, genome to phenotype mapping, genome privacy, AI methods in genetics.
- **Jeannette Bohg**, Assistant Professor of Computer Science. Perception for autonomous robotic manipulation and grasping. Autonomy, reactivity, and robustness of biological systems when physically interacting with complex, dynamic, real-world environments.
- **Emma Brunskill**, Assistant Professor of Computer Science. Advancing theoretical understanding of reinforcement learning and interactive machine learning.
- **Ron Dror**, Associate Professor of Computer Science and, by courtesy, Molecular and Cellular Physiology. Computational biology, with an emphasis on spatial structure and dynamics at the molecular and cellular levels.
- **Stefano Ermon**, Assistant Professor of Computer Science. Probabilistic reasoning and inference, machine learning, computational sustainability, and sequential decision making and control theory.
- **Ron Fedkiw**, Professor of Computer Science and, by courtesy, of Electrical Engineering. Computational algorithms for a variety of applications including computational fluid dynamics, computer graphics, and biomechanics.
- **Michael Genesereth**, Associate Professor of Computer Science. Computational logic and applications in enterprise management, electronic commerce, and computational law.
- **Leonidas Guibas**, Professor of Computer Science and Electrical Engineering (by courtesy). Computational geometry, geometric modeling, computer graphics, computer vision, sensor networks, robotics, and discrete algorithms.

- **Dan Jurafsky**, Professor of Linguistics and Computer Science. Natural language processing and computational linguistics including speech, dialogue, and Chinese natural language processing, as well as applications to the behavioral and social sciences.
- **Oussama Khatib**, Professor of Computer Science. Methodologies and technologies of autonomous robots, cooperative robots, human-centered robotics, haptic interaction, simulation, augmented teleoperation, and human-friendly robot design.
- **Fei-Fei Li**, Associate Professor of Computer Science and Psychology (by courtesy). Computer vision and machine learning, development of algorithms for image and video understanding, and underlying cognitive and neural mechanisms of human vision.
- **Percy Liang**, Assistant Professor of Computer Science and Statistics (by courtesy). Machine learning and natural language processing, particularly semantics, weakly supervised learning, statistical learning theory.
- **Chris Manning**, Professor of Linguistics and Computer Science. Natural language processing, computational linguistics, and machine learning including systems and formalisms that intelligently process and produce human languages.
- **Juan Carlos Niebles**, Senior Research Scientist. Computer vision and machine learning, with a focus on visual recognition and understanding of human actions and activities, objects, scenes, and events.
- **Dorsa Sadigh**, Assistant Professor of Computer Science and of Electrical Engineering. Learning and control, formal methods, and human-robot interaction. Designing provably correct controllers for human-cyber-physical systems (h-CPS) such as semiautonomous vehicles.
- **Ken Salisbury**, Research Professor of Computer Science, Surgery, and Mechanical Engineering (by courtesy). Robotics including surgical simulation, applied medical systems, haptics, human-interactive robots, and personal robotics.
- **Silvio Savarese**, Associate Professor of Computer Science. Computational vision and geometry particularly fundamental principles, algorithms, and implementations for solving visual recognition and reconstruction problems.

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