

Mark Scheeff

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EDUCATION 1992 B.S. Mechanical Engineering, Stanford University
1995 M.S. Mechanical Engineering, Stanford University
Course work: Mechatronics (mechanical/electrical/software), robotics, product design and studio art.

SKILLSET Mechatronics, Scientific Instrumentation, Medical Devices, Entrepreneur, Project Management,
KEYWORDS Micro-Robotics, High Precision Design, Nanotechnology Tools, Social Robotics, Embedded Computing, Electronic Design, Electron Microscopy, Solar/electric Cars.

EXPERIENCE **Product Development, Loma Vista Medical**
July 2007-current

A venture funded medical device company focusing on making the world's most advanced medical inflatables. More details as they become public.

Co-Founder and Director of Engineering, [Hummingbird Scientific](#)

Oct 2004-June 2007

Co-founder of a company building [tools for electron and ion microscopes](#). Worked with clients in nanotechnology, materials science and biology.

Management/Organization

Helped to start the company from scratch. Strategic planning, hiring, budgets/timelines, fund raising, managing small project groups, marketing presentations, corporate structure, developing new client relationships. With a startup, it's just an endless list...

Engineering

Designed, tested and delivered tools for manipulating samples in a Transmission Electron Microscope (TEM). Examples include nanomanipulation/nanoprobng, tensile testing, chemical reaction and cryogenic sample preparation as well as micro-motorized systems for ultra-precise sample manipulation. Design work included piezo actuation, high precision mechanical design, shielding and wiring, vacuum compatibility, sensor and motor selection, interface software and chassis, embedded controllers, high voltage design, and cryogenic design in vacuum systems.

Funding

Lead author and PI on three winning phase I Small Business Innovation Research (SBIR) grants from the US government. Lead author and designated PI on the two subsequent phase II proposals. \$1.8M raised.

Engineer, Lawrence Berkeley National Lab (LBL)

Oct 2001-Oct 2004

I worked in an internal consulting group (DesignWorks) that specialized in small to medium sized projects, cross-disciplinary work, and a rapid, modern, response to project needs.

Engineering

I have worked in the life sciences, micro and nano manipulation, and the Earth sciences. Some examples:

Electron microscopy: Design for high accuracy motion of samples. Mechanical design, piezo actuation.

Autoscope: A machine that views and analyzes large amounts of microscope slides and returns to the user only the most relevant data for further examination. Lots of software plus hardware integration

Microarray Viewer: A new machine for viewing microarrays at UCSF. Mechanical design and need finding.

Laser Tweezers: Working with UC Berkeley scientists to develop a next generation laser tweezer unit for single molecule manipulation. Lots of embedded electronics and software for micros and PCs.

Management/Organization

Built and managed numerous small project teams, developed a project planning process for the group, marketed group inside and outside the lab, built estimates and scopes of work.

Engineering Consultant, Templex Technology Inc.

Dec 2000 - Jun 2001

Templex was a startup producing fiber Bragg gratings, a passive optical component.

Engineering

Lead Engineer for core of manufacturing setup. Developed mechanical specifications. Detailed design and testing of methods for removing and replacing delicate components with high accuracy (2um), repeatability, and stability. Detailed design and testing for holding and straining of optical fiber.

Member of the Research Staff, Interval Research Co.

Mar 1996 - Apr 2000

I worked on a variety of projects at Interval. The largest one explored human response to a [socially competent robot](#). We designed, built, and refined a custom robot and then tested it with an array of human subjects in a variety of contexts.

Engineering/Design

Designed all the mechanical systems, all electrical subsystems (power management, wireless communications command inputs. Etc.) and several generations of onboard computers. I also wrote a portion of the control software. I integrated and debugged these subsystems.

Management/Organization

Conceptual design for the whole robot, including method of operation, appearance, and integration of engineering requirements with research objectives. I also managed the 5-10 person team through the final phase of the project.

Human Testing

Designed and implemented a human testing regime for both lab and public settings, analyzed and reduced the subsequent data and presented results.

Other projects at Interval: Design, implementation and costing of several force feedback devices. Design of a system for simple TV based video editing. Design of a privacy interface for networked video cameras.

Mechanical Engineer, Stanford Linear Accelerator Center (SLAC)

Jan 1993 - Mar 1996

The largest project I worked on was the design of [laser beam steering units](#) for a new diagnostic system.

Engineering

I collected several months of data on stability and performance of various prototypes and then designed two different remote controlled ultra-high stability vacuum compatible steering devices for the laser beam.

Other projects at SLAC: Design of high precision fixtures for electron beam alignment. Cooling and structural analyses for a critical part of the accelerator. Evaluation of SLAC's vacuum gauging.

Engineer and Manager, Stanford Solar Car Project

Jan 1989 - Dec 1993

This was a long time ago, [but I include it](#) because it was such a formative experience. This was ([and still is](#), 20 yrs after its founding) an all-volunteer student group that builds and races cars powered by sunlight.

Engineering

Wrote simulation and optimization software for vehicle design and racing. Controlled the operation of the car during two trans-continental races. Complete performance testing program for all of car's major subsystems. Many other subsystems designed.

Management/Organization

Co-Coordinator for the entire project for one year. Raised money and in kind support through University sources, Stanford election campaigning, proposal writing and corporate contacts. I participated in three trans-continental races and over 20 smaller rallies, fairs and parades held throughout the world.

PUBLICATIONS [Experiences with Sparky, a Social Robot](#), Mark Scheeff, John Pinto, Kris Rahardja, Scott Snibbe, Rob Tow, 2000, in proceedings of the *Workshop on Interactive Robotics and Entertainment* (WIRE - 2000)

[A Layered Architecture for Lifelike Robotic Motion](#), Scott Snibbe, Mark Scheeff and Krisnawan Rahrda, *9th International Conference on Advanced Robotics ('99 ICAR)*

A book chapter in Socially [Intelligent Agents: Creating Relationships with Computers and Robots](#).

Haptic techniques for media control, Snibbe, S. Mclean, K., Shaw, R., Roderick, J., Verplank, W., Scheeff, M. *In Proceedings of the 14th ACM Symposium on User Interface Software and Technology (UIST 2001)*.

REFERENCES On request