Catherine J. (Anderson) Mohr

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Education

Stanford School of Medicine — **Stanford, CA**
Doctor of Medicine, April 2006
Sept 2001-May 2003 worked under a research grant from Ethicon Endo-Surgery to conduct research in minimally invasive surgical tools and techniques. 2003-2006 co-developed with Dr. Camran Nezhat a patentable medical device to minimize vessel injury during establishment of pneumoperitoneum and co-founded a start-up company, Veresure, to further develop the device. 2004 to 2006 co-developed with Dr. Myriam Curet a version of the laparoscopic Roux-en-Y gastric bypass for the da Vinci Surgical System which has since been performed in thousands of patients. During the course of research and clerkship education, scrubbed in as first assistant in over 200 laparoscopic and robotic surgeries. Clerkship experience includes general surgery with sub-internship, urology, neuro critical care, cardiology and radiology with additional special (procedure based) clerkships in interventional radiology and cardiac catheterization.

UCLA (Extension) — **Los Angeles, CA**
Premedical Studies, 1999-2000
Curriculum included organic chemistry, developmental biology, molecular biology, biochemistry, and genetics.

Massachusetts Institute of Technology — **Cambridge, MA**
Master of Science, February 1992
Thesis title: ."The Design of a Compact Actuator System for a Robotic Wrist/Hand", Dr. J. Kenneth Salisbury, advisor. Curriculum included modern control theory, applied robotics, machine design with embedded microprocessors, industrial design, heat transfer, advanced fluid dynamics, and thermodynamics.

Bachelor of Science in Mechanical Engineering, February 1990.
Thesis Title: "The Design of a High Torque Low Speed Generator Motor Pair for Human Powered Applications", Dr. Gill Pratt, advisor. Curriculum included courses in engineering design and analysis, applied mechanics and dynamics, computer programming (C), classical control theory, fluid mechanics, thermodynamics, mathematics, material behaviors, human factors, visual communication, organic chemistry, and liberal arts.

Work Experience

Intuitive Surgical, Inc. — **Sunnyvale, CA**
July 2014 to present – Vice President, Medical Research
Responsible for strategic planning of new developments, defining measures of clinical utility for experimental surgical devices, defining core clinical metrics of success for particular surgical procedures, identifying key new technologies for incorporation into the robotic platform, co-managing Intuitive's research grant program, and conducting surgical labs to evaluate prototype devices and technologies. Provides clinical guidance to a multi-disciplinary team aimed at developing the next generations of robotic surgical platforms.
Joined ISI March 2006 - Previous titles Director and Sr. Director of Medical Research

Veresure, Inc. (purchased by Aragon Surgical, later by Aesculap) — **Palo Alto, CA**
October 2005 to March 2006 – Founder
Co-founded a startup company to commercialize a device for safely establishing pneumoperitoneum. Sold company after obtaining FDA approval and introducing the product to the marketplace.

Suite600 Engineering & Design **Mountain View, CA**
December 2002 to March 2006 – Principal Mechanical Engineer
Sole proprietorship for engineering consulting.

AeroVironment, Inc **Monrovia, CA**
June 2000 to August 2001 – New Business Development, ESDC
Primary role was to identify and develop new business areas for the R&D branch of AeroVironment, develop Intellectual Property documentation and forge alliances or joint ventures with partner companies.

April 1998 to May 2000 – Product Engineering Manager
Founded a product development group within a company which had a primarily R&D corporate culture, helping to develop the systems and processes necessary to control product development and achieve ISO 9002 certification. Managed and directed the product development and sustaining engineering for all of the company's products, plus representing AeroVironment on several industry standards committees.

August 1997 to April 1998 – Fuel Cell Laboratory Manager
Designed and set up a fuel cell laboratory for researching and developing a closed-system fuel cell/electrolyzer energy storage for AeroVironment's high altitude solar aircraft, Helios. Worked with NASA sponsors and various aerospace subcontractors to develop and launch a multi-year development program.

May 1992 to August 1997 – Project Engineer, Mechanical Engineering Group Head
Worked as a lead systems engineer in energy storage and electric and hybrid powertrain development for land vehicles, as well as developing computer simulations and control system architectures. Additional responsibilities include managing the Mechanical Engineering group within the Electromechanical center, overseeing major projects and project budgets, system administration, and proposal writing.

MIT Artificial Intelligence Laboratory **Cambridge, MA**
February 1991 to April 1992
Worked as a Research Assistant under Dr. J. Kenneth Salisbury designing and building a lightweight gripper actuator package with novel tendon materials for a high-speed robotic arm.

Consultant Engineer **Cambridge, MA**
September 1989 to May 1992
Worked independently for several companies including Massachusetts Eye and Ear Infirmary, Massachusetts General Hospital, and Engineering Dynamics Corporation as well as a subcontractor to Prof. Ernesto Blanco. Projects included developing experimental apparatus for corneal perfusion and microperfusion, designing and manufacturing molds and electrodes for retinal implants, creating large-scale models of surgical instruments for a patent litigation, redesigning the stair mechanism for the Bioclimber stair climbing exercise machine, preparing the court documents and performing structural analysis of flour mills for a patent litigation, and designing carriers, switching stations, and a barcode reading system for a clinical laboratory blood sample conveyer.

Premise, Inc. (purchased by ComputerVision) **Cambridge, MA**
October 1988 to August 1991
Applications Engineer and University Program Coordinator for startup software company. Developed applications for CADD software package DesignView and helped write functional specifications for version 2.0. Responsibilities included advising customers on problem solving techniques, teaching classes on using DesignView effectively, testing writing a general engineering problem solving manual, acting as the liaison for the University Program, and assisting in technical presentations.

MIT Biomechanics Laboratory **Cambridge, MA**
February 1988 to July 1988
Worked under Dr. Will Durfee to develop an experimental fluidic brake for orthotic knee braces, build an indexable brake system for electrical muscle stimulation experiments, and build a quick-release motorized tendon tensioner for use during surgical electrical muscle stimulation experiments.

MIT Mechanical Engineering Department **Cambridge, MA**
February 1987 to July 1987
Worked under Dr. David Gordon Wilson to design and build a crank-driven generator light for a bicycle.

MIT Solar Car Team **Cambridge, MA**
January 1987 to August 1990
Assisted in designing and building a series of solar powered racing cars for competition in Switzerland, Australia, and the United States. Acted as chief race mechanic for several international and domestic races and as alternate driver in the World Solar Challenge in Australia. Skills include composite mold making and body construction, advanced machining, tool grinding, NC machining, brazing, braze welding, arc welding, spoked wheel building, tire retreading and painting.

Massachusetts Eye and Ear Infirmary **Boston, MA**
September 1985 to May 1986
Lab technician for glaucoma research in the Howe Lab. Responsibilities included care of 20 experimental rabbits, gathering of intraocular pressure measurements and anterior chamber fluid samples (paracentisis), and spectral analysis of fluid samples.

Teaching Experience

Singularity University **Moffet Field, CA**
Medicine Faculty, July 2009 to present
Regular lecturer for the Singularity University Executive Program and Graduate Studies Program medicine tracks and technology workshop coordinator and lecturer for the FutureMED Programs

Stanford School of Medicine **Stanford, CA**
Consulting Assistant Professor, June 2010 to present
Clinical Instructor in Surgery April 2006 to June 2010
Coordinator for Goodman Surgical Center October 2006 to June 2010
As Coordinator for the Goodman Surgical Center and Clinical Instructor in Surgery, was responsible for the development and coordination of simulation-based learning programs within the Goodman Surgical Center and at the Surgical Education Institute at Stanford, and instruction of General Surgery residents in the surgical skills curriculum. Present role is in an advisory position, and teacher in seminar series.

Stanford School of Medicine **Stanford, CA**
Teaching Assistant April 2003 to June 2005
Teaching Assistant for entire Pathology Series (230A,B,C) and head TA for entire HHD series. Responsibilities included teaching review sections, coordinating other TAs, writing problem sets and developing new course material during curriculum reform.

MIT Mechanical Engineering Department **Cambridge, MA**
Teaching Assistant September 1990 to December 1990
Teaching assistant and section instruction for the senior undergraduate design course 2.73. Responsibilities included acting as primary instructor for one lab section (12 students) as well as background research for the major design project.

Teaching Assistant January 1990 to June 1990
Teaching assistant and section instructor for the introductory undergraduate design course 2.70. Responsibilities included acting as a primary instructor for one lab section (15 students) plus overall coordination of student contest.

Invited Talks

Aspen Ideas Festival, Spotlight: Health Panelist	Aspen, CO June 2014
Founders Forum Healthtech 2014 Panelist	London, England, June 2014
InspireNZ Lecture Series	Auckland, Wellington, Christchurch, NZ May 2014
WIRED BizCon "Surgical Steel"	New York, NY May 2014
WIRED UK, WIRED Health summit	London, England, Apr 2014
USA Science and Engineering X-STEM Symposium	Washington, DC, Apr 2014
U.S. News STEM Solutions Conference Panelist	Washington, DC, Apr 2014
SXSW Healthcare Panel "Inviting robots into patient care"	Austin, TX, Mar 2014
NextMed/MMVR21 Conf Keynote speaker	Manhattan Beach, CA, Feb 2014
Government Summit 2014 "Between Prevention & Prescription" panelist	Dubai, UAE, Feb 2014
"The future of surgery" Carlmont High SchoolScience seminar series.	Carlmont, CA, Feb 2014
"The Road Less Traveled" PA Association of Women In Science	Palo Alto, CA, Jan 2014
Master Class-Disruptive Technologies in Surgery, SVCO	Oxford, England, Nov 2013
Chamber debate, Oxford Union	Oxford England, Nov 2013
Intro to Sustainability, Merritt College	Oakland, CA, Nov 2013
Chicago Ideas Week "Scientific Breakthroughs"	Chicago, IL, Oct 2013
Keynote IEEE Engineering in Medicine	Osaka, Japan, Jul 2013
Innovation & The Future panel discussion, SparkLabs	Seoul, Korea, Jun 2013
Invited Lecture, Ewha Medical School	Seoul, Korea, Jun 2013
Surgical Robots as Platform for Tech Develop" New Zealand Biotech Assoc,	Wellington, NZ, May 2013
Keynote New Zealand Medical Students Conference on	Wellington, NZ, May 2013
Stanford Surgical Robotic Seminar "Augmenting the Surgeons Senses".	Stanford, CA, May 2013
TEDxUCSD "TED Vaccine Challenge"	San Diego, CA, May 2013
Keynote WiSE ONE.0 Conference	Berkley, CA, Feb 2013
Robotics Institute Seminar Carnegie Mellon University	Pittsburg, PA, Feb 2013
"Women's Perspectives in Engineering" Seminar, Stanford Univ,	Palo Alto, CA, Jan 2013
Engineers Club of Dayton "Transforming the Future with Robotic Surgery"	Dayton, OH, Nov 2012
2012 Frost and Sullivan Innovators of Silicon Valley Award, and panelist	San Jose, CA, Sep 2012
Panelist 'Future of Medicine' at Fortune Magazine's BrainstormTECH Conf	Aspen, CO, Jul 2012
The Hamlyn Symposium on Medical Robotics in	London, England, Jul 2012
"Beyond Surgical Robotics" Google's Zeitgeist Europe 2012	Hertfordshire, England, May 2012
X-STEM USA Science & Engineering Festival's	Washington, DC, Apr 2012
"Introduction to the Field of Surgical Robotics: Surgery" Stanford	Palo Alto, CA, Apr 2012
"Interventions" Workshop FutureMed, Singularity University, NASA	Silicon Valley CA, Feb 2012
Opening Remarks, NZ Trade Health Innovations, JPMorgan Healthcare	San Francisco, CA, Jan, 2012
"The Robotics Revolution"Atlantic Magazine's The Atlantic Meets the Pacific	La Jolla, CA, Nov 2011
Predicting the Future of Surgery TEDMED2011	San Diego, CA, Oct 2011
"Augmenting the Surgeon's Senses", MedTech Frontiers	Silicon Valley, CA, Oct 2011
"Charting New Frontiers in Robotic Surgery" Harvard Business School Alumni	Los Altos, CA, Oct 2011
Brookhaven Women in Science: "From Surgeons to Superheroes",	Upton, NY, Apr 2011
SAGES: "Fluorescence Imaging in Robotic Assisted Surgery"	San Antonio, TX, Mar 2011
Runninghot: "From Surgeons to Superheroes",	Wellington, NZ, Nov 2010
LA IdeaProject 2010: "When geeks build green",	Los Angeles, CA, Oct 2010
MassTLC 2010: "Improving the Quality of Healthcare through Robotics"	Boston, MA, Oct 2010
Womensphere Global Summit 2010:" Women & Innovation"	New York, NY, Sep 2010
GE Whitney Symposium: "Augmenting the Surgeons Senses"	Niskayuna, NY, Jun 2010
NZMSA: "Outside the Box: taking the road less traveled"	Queenstown, NZ, May 2010
Image Guided Therapies: "Surgical Robotics, Future Technologies"	Toronto, Canada, Apr 2010

TEDU 2010: "When Geeks build Green"	Long Beach, CA, Feb 2010
Issues and Controversies in Prostate Cancer: "New Technologies"	Las Vegas, NV Feb 2010
Ciudad de las Ideas: "Robot Surgeons: Contemporary Heroes"	Puebla, Mexico, Nov 2009
MORGO: "The Surgeon in the Digital Age"	Waitangi, New Zealand, Oct 2009
Victoria University, NZ: "Surgical Robotics: Future Technologies"	Wellington, NZ, Aug 2009
Advances in Optics for Biotechnology, Medicine and Surgery XI: "Robot Vision"	Burlington, VT, Jul 2009
International Space University: "Surgical Robotics, Future Technologies"	Menlo Park, CA, Jul 2009
Seoul Digital Forum: "Medical Robots: Dr. Digital"	Seoul, Korea, May 2009
TED 2009 Main Stage: "Surgery's past, present and robotic future"	Long Beach, CA, Feb 2009
N. American Medical Dental Conf.: "Surgical Robotics: History and Future"	Snowbird, UT, Dec 2008

Awards and Honors

World Class New Zealander	May 2014
Hood Fellowship 2014 University of Auckland Academic Visiting Fellowship	2014
Member of Opposition Team (prevailing) Annual SVCO Debate at the Oxford Union	Nov 2013
USA Science and Engineering Festival Designated one of the "Nifty Fifty" noted science mentors	2012
Frost and Sullivan "Innovators of Silicon Valley" Award	2012
Intuitive Surgical Inventor of the Year (shared)	2011
Intuitive Surgical Agility Award	2009
Institute for the Advancement of Engineering, Fellow	Feb 2000
NASA Public Service Group Award. Centurion/Pathfinder Team, AeroVironment	May 1998
Sigma Xi, The Scientific Research Society. Elected to Full Membership	April 1992
Second Place, MIT DeFlorez award For excellence in design	Dec 1988
MIT Clapp and Poliak Award For excellence in undergraduate design and research	May 1987

Advisory Affiliations

World Class New Zealand Network Health Tech advisor	2014 to present
Accenture Technology Vision External Advisory Board	2014 to present
CERA (Canterbury Earthquake Recovery Authority) Health Precinct Advisor	2014 to present
Ignite21c Scientific Advisor	2013 to present
NCI Investor Forum Reviewer	2013 to present
GAVI TED Vaccine Challenge Working group	2013 to present
NeuralID (high tech startup), Member of Scientific Advisory Board	2013 to present
Google[x], Advisory participant in SolveFor[X]	2013 & 2014
World Economic Forum The Future of Health Systems Workshop Participant	Oct 2012
Compact Imaging (high tech startup), Member of Scientific Advisory Board	2009 to present
Blue World Alliance (ocean focused charity), Member of the Board of Directors	2009 to 2013

Professional Memberships and Committees

Association of Women Surgeons (Former Chair of Medical Student Committee, on the AWS council), **American College of Surgeons** (first student representative on Committee on Medical Student Education) **Member of Stanford's LCME** accreditation review preparation committee, and site visit participant. The student representative for Stanford at joint ASE/APDS program "The Resident, the Student and the Competencies". Student member of **Association of Surgical Educators**. **Society of Automotive Engineers** (former representative on several standards committees), **ASME** (former member of the LA Chapter Executive Committee), **Sigma Xi**, full member

Patents

8,771,180 "Retraction of tissue for single port entry, robotically assisted medical procedures"	July 2014
8,740,885 "Guide tube control of minimally invasive surgical instrument"	June 2014
8,712,151 "Method and structure for image local contrast enhancement"	April 2014
8,706,184 "Meth. and apparatus for displaying enhanced imaging data on a clinical image"	April 2014
8,620,473 "Medical robotic system with coupled control modes"	Dec 2013
8,517,933 "Retraction of tissue for single port entry, robotically asst. medical procedures"	Aug 2013
8,228,368 "Augmented stereoscopic visualization for a surgical robot using a captured fluorescence image and captured stereoscopic visible images"	Jul 2012

	8,182,415 "Minimally invasive surgical system"	May 2012
	8,169,468 "Augmented stereoscopic visualization for a surgical robot"	May 2012
	8,167,793 "Augmented stereoscopic visualization for a surgical robot using time duplexing"	May 2012
	8,029,516 "Bracing of bundled medical devices for single port entry, robotically assisted medical procedures"	Oct 2011
	7,585,281 "Vacuum-actuated tissue perforation device for establishing pneumoperitoneum"	Sep 2009
	7,507,209 "Method for establishing pneumoperitoneum"	Mar 2009
	5,224,585 "Carrier for coded containers" Blanco et al	Jul 1993

Blogs & Publication Contributions	**Forbes** "Intuitive Surgical Exec: Here is why Robotic Surgery is Useful"	July 2014
	AIF Blog "Driving Technological Innovation when you don't need to be in the driver's seat"	June 2014
	USA Science and Engineering Festival: The Blog "Making it up as you go along, a guide to a happy career in science"	April 2014
	301 Monroe "When Geeks Build Green" Personal blog on sustainability	2011-2012
	Freakonomics Blog "Is Robotic Surgery Cheaper?"	July 2010

Academic Publications

Taghizadeh F, Reiley C, **Mohr C**, Paul M. Evaluation of robotic-assisted platysmaplasty procedures in a cadaveric model using the da Vinci Surgical System. *J Robotic Surg* 2014 Mar 8(1) 63-71

Tsang RK, **Mohr C**. Lateral palatal flap approach to the nasopharynx and parapharyngeal space for transoral robotic surgery: a cadaveric study. *J Robotic Surg* 2013 Jun; 7(2):119-123

Ponnusamy K, Sorger JM, **Mohr C**. Nerve mapping for prostatectomies: novel technologies under development. *J Endourol* 2012 Jul;26(7):769-77

Ponnusamy K, **Mohr C**, Curet MJ. Clinical outcomes with robotic surgery. *Curr Probl Surg* 2011 Sep; 48(9):577-656

Ponnusamy K, **Mohr C**, Curet MJ. In brief. *Curr Probl Surg* 2011 Sep;48(9):577-656

Mantovani G, Liverneaux P, Garcia JC, Berner SH, Bednar MS, **Mohr CJ**. Endoscopic exploration and repair of brachial plexus with telerobotic manipulation: a cadaver trial. J Neurosurg. 2011 Apr 8.

Parent RJ, Plerhoples TA, Long EE, Zimmer DM, Teshome M, **Mohr CJ**, Ly DP, Hernandez-Bousard T, Curet MJ, Dutta S. Early, intermediate and late effects of a surgical "boot camp" on an objective structured assessment of technical skills: a randomized controlled study. *J Am Coll Surg* 2010 Jun;210(6):984-9

Ponnusamy K, Chewning S, **Mohr C**. Robotic approaches to the posterior spine. *Spine* 2009 Sep1;34(19):2104-9

Mohr C, Nadzam G, Alami R, Sanchez B, Curet M. Totally Robotic Laparoscopic Roux-en-Y Gastric Bypass: Results from 75 patients. *Obesity Surgery* 2006, June; 16(6):690-6

Mohr C, Nadzam G, Curet M. Totally Robotic Roux-en-Y Gastric Bypass. Archives of Surgery, 2005;140:779-786, presented at Pacific Coast Surgical Association Meeting, Feb 2005

Sanchez BR, **Mohr CJ**, Morton JM, Safadi BY, Alami RS, Curet MJ "Comparison of totally robotic laparoscopic Roux-en-Y gastric Bypass and traditional laparoscopic Roux-en-Y gastric bypass" *Surgery for Obesity and Related Diseases.* 2005; 1:549-554

Mohr C, Nezhat FR, Nezhat CH, Seidman DS, Nezhat CR. Fertillity considerations in laparoscopic treatment of infiltrative bowel endometriosis. *JSLS* 2005 Jan; 9 (1): 16-24.

SAE J2293-2 Energy Transfer System for Electric Vehicles -- Part 2: Communication Requirements and Network Architecture Application Appendix for Type C Architecture Systems. Society of Automotive Engineers Standard, November 1999.

Anderson C, Pettit E. The Effect of APU Characteristics on the Design of Hybrid Control Strategies for Hybrid Electric Vehicles. SAE Publication SP-1089 Design Innovations in Electric and Hybrid Electric Vehicles. SAE International Congress & Exposition, Detroit, MI, Feb 1995.

Anderson C. Vehicular Applications for Hybrids of Near-Term Fuel Cells, Batteries and IC Engines. Proceedings of the International Conference on Fuel Cells, Long Beach, CA, February 1994.

F. Mitlitsky N.J. Colella, B. Myers, **C.J. Anderson** Regenerative Fuel Cells for High Altitude Long Endurance Solar Powered Vehicles, Proceedings of the IECEC Conference, Atlanta, GA, August, 1993.

Personal Married with one daughter. Interests include green building, native gardening, mountaineering, horseback riding, ceramic and wood sculpture, cello, SCUBA diving and travel.

Citizenship New Zealand, US Resident Alien Status