

# Self-Evaluation

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After defending my PhD at Carnegie Mellon in 1990, I was hired as Assistant Professor in the Computer Science Department at USC. I moved to UC Berkeley's IEOR Department in 1995 and was promoted to Associate Professor in 1997. In 2000, I was granted a secondary appointment in the EECS Department (0%, above the line), and in 2001 was promoted to Full Professor. In 2004 I was promoted to Full Professor Step V. In 2007 I was granted a third appointment in the School of Information (0%, below the line) and promoted to Professor Step VII. This self-evaluation has been prepared for an evaluation for promotion to Full Professor, Step VIII. It summarizes research and creative work, teaching, and service activities over the past three years.

My primary challenge is containing my curiosity. Despite my best intentions, I have been unable to do so. I've been curious about art, rockets, and robots since I was a boy. My wife Tiffany Shlain, a documentary filmmaker, and our daughters, Odessa (now 7) and Electra (now 18 months), are also extremely curious so they are not helping matters. Working as a Professor at UC Berkeley has only exacerbated my condition.

I've always been interested in situations where abstraction meets materiality. Maybe it was my background growing up as one of the only Jewish kids in the steel town of Bethlehem Pennsylvania. My mother, an artist and reading specialist, taught me about the Jewish concept of G-d, an abstraction that cannot be visualized or verbalized, and my father, a metallurgist and engineer, helped me build a go-kart and taught me about the materiality of machines. I ended up studying Robotics, a field where engineers encounter the Mind-Body Problem.

I'm a hybrid. I pursue research in engineering and create art that considers the impact of technology on nature, perception, and culture. Although C.P. Snow characterized many differences between the "two cultures" in academia, In my experience they have much in common. Both the Humanities and the Sciences require years of training and demand rigor. And they both thrive on creativity and counter-intuitive ideas. I'm fortunate to have experience in both cultures and have a passion for projects that build bridges between them.

During this three-year review period I served as Director of Berkeley Center for New Media, a highly cross-disciplinary campus center that now has 130 affiliated faculty members from 35 campus departments. I was able to draw on my own cross-disciplinary background and learned many lessons about managing a large campus

organization. I remained active in research but was not able to devote as much time as I'd like to teaching; however one highlight for me was developing a new course with Prof. Emeritus Hubert Dreyfus (Philosophy). One of the privileges of being at Berkeley is the opportunity to work with world-renowned scholars. I have long admired Prof. Dreyfus; since coming to Berkeley I've been fortunate to meet with him monthly over lunch to discuss technology and philosophy. I believe that important insights and innovations can result from synthesis between disciplines. In the next phase of my career, my goal is to initiate new research and extend collaboration and dialogues between academic cultures.

### **Research and Creative Work.**

My technical research areas are automation, robotics, and social information filtering. My other creative work involves art installations and screenwriting. Below I provide an overview and then describe specific results published during the review period.

#### **Technical Research: Cumulative Summary**

I am the founding director of the Berkeley Automation Sciences Lab where I lead a research group of one postdoc and 10-15 graduate and undergraduate students. I pursue technical research in four areas. The first area is "Algorithmic Automation", algorithmic approaches to problems in manufacturing: feeding (orienting), grasping, and fixturing industrial parts. The second area is "Networked Telerobotics", where robots are remotely operated via networks such as the Internet. In 2005, I was elected Fellow of the Institute of Electrical and Electronics Engineers (IEEE), "for contributions to networked telerobotics and geometric algorithms for automation." My third research area is Medical Robotics, specifically on radiotherapy planning and delivery for prostate cancer, and supervised autonomy of selected surgical subtasks such as retraction and suturing, which was a primary focus during this review period. The fourth area is "Social Information Filtering," developing techniques that combine contributions from large groups of individuals via the Internet to compute recommendations (books, movies, jokes) and crowdsource innovation.

#### **Technical Research: Medical Robotics**

During the review period, I co-wrote a monograph on **Motion Planning for Medicine** [IE15, see C.V.], based on a series of results obtained with my graduate student (and later post-doc) Ron Alterovitz. Working closely with researchers and physicians at UCSF and Johns Hopkins, we considered several challenges associated with brachytherapy, a treatment for prostate cancer where radioactive seeds are inserted with needles to destroy tumors while sparing healthy tissue. The book addresses three problems: registering Magnetic Resonance Spectroscopic Images (MRSI) that localize tumors, computing spatial dose arrangements that maximize exposure to diseased tissue

while minimizing damage to healthy tissue, and developing initial needle models and algorithms for accurately reaching targets inside the human body.

During the review period my students and I published three journal papers and ten conference papers on additional results in medical robotics. Working under an NIH R01 grant, we extended our “Steerable Needles” concept to reaching specified 3D anatomical targets through deformable tissues. This project integrates real-time imaging, adaptive modeling, planning, and image-guided intraoperative needle control. It is an ongoing collaboration with Allison Okamura, Greg Chirikjian, and Noah Cowan of Johns Hopkins, who focus on hardware design and control. My team at UC Berkeley focused on integrating motion planning with real-time imaging [ID103] and on optimal placement of external manipulation of tissue (applying forces from outside the body) to guide needles to internal targets, formalizing a technique we learned from physicians [ID105]. We also developed several new techniques for modeling and compensating for spatial uncertainty using dynamic programming [IA46] and for modeling deformation using Finite Element models [IA47]. Initial results focused on motion restricted to a given (2D) plane as determined by classic ultrasonic imaging. Recent developments in ultrasound now generate 3D images, so during the review period we began to extend these results to steering needles in 3D space. We explored several approaches such as a new geometric screw model [ID98], a closed-form inverse kinematic solution that fitted a series of circular segments in 3D from specified start- and end-points [IA48, ID104], a feedback approach using helical sub-segments [ID106], sampling-based planning using Rapidly-exploring Random Trees (RRTs) [ID102], and planning paths to multiple tumor targets from a single entry point [ID108]. One paper, co-authored with EECS Profs. James O’Brien and Jonathan Shewchuk, developed fast 3D simulation of deformable tissue based on new techniques for incremental mesh maintenance; this paper was presented at SIGGRAPH in 2009 [ID107].

I also initiated a new project with UC Berkeley Asst. Professor of EECS Pieter Abbeel and Profs, Cenk Cavusoglu and Wyatt Newman of Case-Western University: “Robust Intelligent Manipulation and Apprenticeship Learning for Robotic Surgical Assistants”. Under a four year NSF grant awarded in August 2009, we are developing new models, algorithms, and testbeds that will allow laparoscopic surgery robots such as Intuitive Surgical’s “da Vinci” to perform selected subtasks such as retraction and suturing under supervised autonomy to improve patient care by reducing surgeon fatigue and time in the operating room. We developed a planar model for optimal surgical retraction of tissue strips [ID110]. We also applied Abbeel’s apprenticeship learning approach based on human demonstrations to surgical suturing and extended his results with a form of iterative learning that can speed up the resulting motions to obtain “superhuman” performance. Our paper [ID113] on this was selected as **Best Medical Robotics Paper** at the prestigious IEEE International Conference on Robotics and Automation.

### **Technical Research: Algorithmic Automation**

In 2004, I was co-founder of IEEE *Transactions on Automation Science and Engineering* that publishes the abstractions, algorithms, theory, methodologies, models, systems, and case studies that can be applied across industries to significantly advance efficiency, quality, productivity, and reliability for society. During the review period I continued to serve as Chair of the T-ASE advisory Board and in January 2010 became a Senior Editor.

During the review period, I organized three international workshops on Algorithmic Automation and gave invited talks on this topic at PARC, Carnegie-Mellon, Panasonic, Tel Aviv University, UC Merced, and Georgia Tech. I published a paper [ID94] on “blades”, a geometric primitive for part feeding, where we reported experiments and the software implementation of our algorithm to design blade parameters for a given part. Working with colleagues at Bayer Healthcare in Emeryville, we developed the concept of “Perceptive Pallets”, using a network of ultrasonic sensors to track pallets in warehouses exploiting the inherent asymmetry in ultrasound sensors [ID95].

On a national level, I collaborated with 22 senior colleagues to develop the CRA/CCC/NSF Roadmap for Research in Robotics. In Oct 2007, I co-authored an Op-Ed article that appeared in the San Jose Mercury News. *“Made in the USA” Can be Revitalized*, by Ken Goldberg (UC Berkeley) and Vijay Kumar (UPenn), with input from Ruzena Bajcsy (UC Berkeley), George Bekey (USC), Brian Carlisle (Precise Automation), David Dornfeld (UC Berkeley), Erika Fuchs (Carnegie Mellon), Pradeep Khosla (Carnegie Mellon), Yoram Koren (U. Michigan), Peter Luh (U. Connecticut), Matt Mason (Carnegie Mellon), Deirdre Meldrum (Arizona State), Richard Pearson (NCMS), Sanjay Sarma (MIT), Shankar Sastry (UC Berkeley), Warren Seering (MIT), Jeff Trinkle (RPI), Richard Volz (Texas A&M), Peter Will (USC), Paul Wright (UC Berkeley), and John Zysman (UC Berkeley).

### **Technical Research: Networked Telerobotics**

My interest in networked telerobots began in 1994, when I led the research team that developed the first robot remotely operated over the Internet. Networked Telerobotics is now an active research area. During the review period I co-authored a chapter on this topic [IE14] for the **Springer Handbook of Robotics** and worked under an NSF grant to develop networked systems for observing animal behavior, developing “Collaborative Observatories for Natural Environments” (CONEs). This 4-year project with Prof. Dezhen Song of Texas A&M was a collaboration with ornithologists at Cornell and the Smithsonian to advance fundamental understanding of autonomous and networked systems that allow groups of remote humans to collaboratively observe and record detailed natural behavior in remote settings. We designed, prototyped, and evaluated four working examples of hybrid tele-operated/autonomous robotic “observatories” that allow remote observation, recording, and indexing of detailed animal activity, specifically of rare birds. These observatories, made possible by recent advances in

robotic cameras, long-range wireless networking, were accessible via the internet to scientists, students, and the public worldwide. Under this project, we investigated new hardware, interfaces, and developed the algorithmic foundations for such observatories: new metrics, models, data structures, and algorithms that support collaborative observation.

We developed a publicly accessible collaborative robot camera, CONE Welder, designed as an interactive online "game" using a robotic webcam to collect data on wild birds for a climate change project in a remote region of Texas: <http://cone.berkeley.edu/> During the review period we published a conference and journal paper [ID111, IA44] on collaborative camera control algorithms and system designs for Internet-based CONE systems that have been used by thousands of citizen scientists worldwide.

Based on Cornell's report of rediscovering the Ivory-Billed Woodpecker, which was believed to be extinct, we developed and installed an autonomous video observatory system to monitor the sky over a remote region of Arkansas that continuously processed video to save only segments with candidate bird images that could be later analyzed by experts. We published a conference and journal paper on video processing algorithms and system design for this "Autonomous" CONE system [ID101,IA45]. The project advanced fundamental understanding of networked robotics and developed new models and methods for remote and collaborative observation. Links to details, publications and press coverage are available at: <http://www.c-o-n-e.org/>

During the review period my students and I explored a number of other applications for Networked Robots, which are autonomous in contrast to those tele-operated by humans. Under a project led by EECS Prof. Claire Tomlin, we published a paper on automated control of a network of unmanned helicopters to efficiently perform search-and-rescue based on Bayesian Search [ID99]. In another project we developed an algorithm to calculate optimal actuation patterns for an "Actuator Network" of beacons to guide an unobserved robot to a desired location in space [ID100, ID109].

Motivated by privacy concerns, we developed "Respectful Cameras", an approach to surveillance that automatically blurs the faces of individuals based on marker-tracking so that human activity can be monitored (for example in a bank or subway platform) but identity is anonymous unless a decryption key is obtained by court order. In collaboration with Prof. Deirdre Mulligan of the School of Information and Engineering Dean Shankar Sastry, we published a conference paper [ID96] and a book chapter [IE16] on this work, which was also reported by *MIT Technology Review* and *Current TV*.

### **Technical Research: Social Information Filtering**

During the review period my students and I extended Eigentaste, our patented collaborative filtering algorithm using user ratings to recommend items (books, movies,

jokes). We addressed the cold-start problem (insufficient rating data on new items) and dynamically adapted the order that items are recommended by integrating user clustering with item clustering and monitoring item portfolio effects [ID97]. In 2008, we developed a new application, "Donation Dashboard", that allows visitors to indicate their level of interest in a series of non-profits and then recommends a customized portfolio of donations. This system remains online and was reported by *ABC*, *NPR*, and the *Chronicle of Philanthropy*. See <http://dd.berkeley.edu/>

Social Media has tremendous potential for innovation and problem solving, but existing tools such as blogs, wikis, and comment lists can be quickly overwhelmed by the volume of responses and extreme viewpoints. In 2008, I began working with students and colleagues in the Berkeley Center for New Media on a new approach to visualizing social networks based on opinion rather than demographics or connectivity. We developed "Opinion Space," a new interface designed to help communities exchange ideas and suggestions about the issues and policies they care about. Opinion Space is based on a game model and incorporates techniques from deliberative polling, collaborative filtering, and multidimensional visualization. It uses dimensionality reduction to generate an intuitive graphical "map" that displays patterns, trends, and insights as they emerge. We launched an initial online version of Opinion Space in April 2009 and performed a controlled user study in the lab that summer. When Opinion Space was compared with the standard chronological "list" interface, participants read a similar diversity of comments. However, participants reported being significantly more engaged with the Opinion Space system, and they had significantly higher agreement with and respect for the comments they read. These results were presented at the ACM Computer-Human Interface (CHI) conference [ID112]. The project was reported in the *SF Chronicle*, *Wired News*, *UK Guardian*, *CBS News*, and by the *Harvard Journalism Lab*.

In March 2010, Opinion Space was adopted by the U.S. State Department to collect ideas and suggestions on foreign policy questions. My students and I travelled to Washington to meet with staff at State to develop a new version of Opinion Space. Accessible at <http://state.gov/opinionspace> the system has attracted thousands of participants from around the world. This is an exciting ongoing project and we are working with other experts and organizations to extend it.

*"Opinion Space will harness the power of connection technologies to provide a unique forum for international dialogue. This is ... an opportunity to extend our engagement beyond the halls of government directly to the people of the world."* -- U.S. Secretary of State Hillary Clinton

### **Creative Work: Art and Screenwriting**

As an artist, I consider the impact of technology on nature, perception, and culture and seek to create new experiences for viewers. When I encounter a new medium I ask: what can it express that could not be expressed before? To draw in viewers, I draw on

familiar but contrasting contexts, for example putting a robot into a garden or using the internet to combine live seismic data with classical ballet.

Collaboration is essential to my work as an artist and as a researcher. As Duchamp observed, the artist acts like a “mediumistic being”, picking up signals from his or her environment. I start with the seed of an idea and work closely with collaborators to shape and refine it. My role is similar to that of an independent film director. Everyone on the team contributes: the artwork or research project that emerges is often much better than what I originally conceived.

I’m represented by the Catharine Clark Gallery in San Francisco. During the review period I exhibited a networked projection installation at her gallery [IIE09] and new media artworks in group shows in France, Italy, Finland, Portugal and Russia, as well as several Bay area venues [IIE66-75]. In summer 2008, I was granted an Artist Residency at the Headlands Center for the Arts, Marin, CA.

In 2008, I collaborated with my wife, Tiffany Shlain, on an interactive installation, “Smashing,” that combines found video and audio with a custom step-pad to explore variations on the Jewish wedding custom of breaking a glass. It was exhibited at the San Francisco Contemporary Jewish Museum and at the Pulse Art Fair in New York and purchased for a private collection.

My other creative work is in documentary screenwriting. During the review period, *The Tribe*, a short documentary film on Jewish Identity that I co-wrote in 2006 won several additional awards :

- Ovation Award: Best Documentary, LACMA screening in LA, June 2010
- Best Documentary, Westchester Film Festival, May, 2008
- Best Short Documentary, Cleveland Int’l Film Festival March 2008
- #1 Downloaded Short Film on iTunes Oct 26th, 2007
- International Jewish Topics Award, Argentina Jewish Film Festival Oct. 07
- Best Documentary: New York Shorts Fest Oct 07
- Best Documentary, LA Shorts Fest Sept 07

In 2009, Tiffany and I co-wrote the screenplay for *Yelp (with Apologies to Allen Ginsberg)*, a documentary short film on technology overload that suggests periodic unplugging to maintain sanity, which was selected by The Guggenheim Museum for their Creative Video Biennial Shortlist and featured in the *New York Times*. I’m now collaborating with Tiffany as co-writer of a new documentary film which will come out in 2011.

## **Teaching**

I greatly enjoy teaching and advising the superb students at Berkeley. During my career I’ve supervised 11 postdocs, 11 PhD students, and 8 MS students. I also actively recruit

and advise undergrads in my lab and supervise their independent study projects. The lab group meets weekly for research discussions over pizza. I'm currently advising five PhD candidates, Ephrat Bitton, Siamak Faridani, and Melissa Goldstein of IEOR, Judy Hoffman of EECS, and Timmy Siau of CE; and have 12 undergraduates working on research in the lab.

In the IEOR Department, I regularly teach undergraduate and graduate courses on Database Design and Industrial Design. During the Review Period I had a reduction in teaching but taught three semesters (every Fall ) of IEOR 115, Design and Analysis of Databases. This is an upper-division project course where student teams work with local organizations (from UCOP to a local solar heating company) to analyze needs and design and implement prototype database systems.

As overload in Fall 2009, I taught IEOR 24, a Freshman Seminar that introduces students to the field with guest lectures by other faculty. During the review period the IEOR Department coordinated with the Berkeley Center for New Media to arrange a reduction in my teaching load to allow me to teach NWMEDIA 201 (below) and to support my work as Director of BCNM. IEOR's graduate course on Database Theory (IEOR 215) and an undergraduate course on Human Factors and Industrial Design (IEOR 170) were taught by outside instructors. For these courses, I coordinated and acted as Instructor of Record.

During the review period I also taught six semesters (every semester) of my graduate seminar, Questioning New Media (NWMEDIA 201, room-shared as IEOR 298-3). This seminar is held in conjunction with the Art, Technology, and Culture Colloquium, a lecture series I've been organizing since 1997 which brings internationally-known speakers to campus to present work on advanced topics in art and new media. During the review period I curated and organized 29 evening ATC lectures, which are free of charge and open to the public, with speakers such as Laurie Anderson, Greg Lynn, Bill Fontana, Anne Pasternak, Candice Breitz, and David Harrington , founder of Kronos Quartet. A full list is available at: <http://atc.berkeley.edu>

In the Questioning New Media seminar, students enhance skills in questioning and challenging assumptions about new media: how to think critically about advanced topics in new media, how to use new media resources such as the internet to research pioneering work in new media, how to formulate incisive questions about new media, and how to evaluate and create effective presentations on topics in new media. During the review period we converted this from a 2-unit course to a 3-unit course based on additional writing and presentation requirements. The course is a requirement for BCNM's PhD-level Designated Emphasis in New Media.

**Teaching: L&S 160E Technology, New Media and Contemporary Experience**



In 2006, Prof. Emeritus Hubert Dreyfus (Philosophy) and I developed and co-taught a lecture course that considered early 20<sup>th</sup> century efficiency and time-and-motion studies of Frederick Taylor and the development of phenomenology. In 2008 we began to develop a new course focused on contemporary technologies. In Spring 2010, Bert and I co-taught (as overload) **L&S 160E: Technology, New Media and Contemporary Experience**, an L&S Discovery Course. The goal of this cross-disciplinary course is to provide students with skills to understand technology in a broad historical context and to gain insight into the perils and promises for contemporary experience. Twentieth century technologies such as the assembly line and the highway system emphasize efficiency, control, and optimization. In contrast, 21<sup>st</sup> century technologies such as internet search engines, smartphones, and social networks are characterized by flexibility and their ability to be reconfigured. This characteristic is exemplified by the promise of other technologies such as genomics, stem cells, robotics, and nanotechnology. The course was based on lectures and close readings of writings by Martin Heidegger, Michel Foucault, Gilles Deleuze, and Roland Barthes.

#### **Service : External**

Off campus, I am active in the IEEE Robotics and Automation Society (RAS), the largest international society in my field, with over 6000 members. I've been elected to three three-year terms on its Advisory Board and served two terms as Vice President of Technical Activities (most recent from 2008-2009), where I was responsible for technical initiatives and overseeing 21 Technical Committees and 24 Distinguished Lecturers. I've also been active as a member of the steering committee of the biannual Workshop on Algorithmic Foundations of Robotics (WAFR), and serve on the Editorial Advisory Board of the Springer-Verlag Advanced Robotics Book Series.

During the Review Period I presented 52 invited lectures at universities and public and private organizations, including:

- 2010, *Plenary Speaker*. UC Summit on Haiti, UCSF.
- 2009, *Plenary Speaker*. Performing Presence Conference, Exeter University, UK.
- 2008, *Plenary Speaker*. 2nd Israel Conference on Robotics (ICR), Tel Aviv.
- 2008, *Plenary Speaker*. AAI Spring Symposium on Creative Intelligent Systems, Stanford University.

#### **Service : Campus**

I enjoy service on campus. In addition to organizing the monthly public lectures for the Art, Technology, and Culture Colloquium, I continued to serve as a member of the Academic Senate Committee on Computing and Communications (COMP).

I am actively involved with the College of Engineering's Center for Information Technology in the Interest of Society (CITRIS), where I lead the New Media Theme and

work to facilitate interactions with faculty outside of Engineering and at other UC Campuses. From 2004-2010 I chaired the Academic Advisory Committee to the Berkeley Art Museum and Pacific Film Archive (BAM/PFA), which coordinates faculty advising on exhibitions and programming, and served as an ex-officio member of the BAM/PFA Board of Trustees, where we focused on design and fundraising for the new museum building.

### **Service : Campus: Berkeley Center for New Media**

*"At the Berkeley Center for New Media, scholars and students explore the powerful effect of new media on culture and think rigorously about how new media will continue to change our lives and perceptions."* - -Chancellor Robert J. Birgeneau (2008)

My primary service activity over the past 3 years was as Director of the Berkeley Center for New Media (BCNM). As economic, political, and technological landscapes shift, new media continue to evolve and impact the way we experience and interact with the world. The mission of BCNM is to critically analyze and help shape developments in new media from cross-disciplinary and global perspectives that emphasize humanities and the public interest.

As Director of the Center from July 2007 – June 2010, I worked to extend faculty involvement, create new public and research programs, establish teaching and research spaces, fundraise, and increase the external visibility and reputation of the Center. My first step was to reorganize the Executive Committee to engage more junior faculty and to create the part-time staff position of Associate Director.

BCNM was established in 2004. It emerged from a campus-wide competition to identify five new cross-disciplinary research areas that would not emerge within any single discipline and to create and provide FTE for five New Initiative Centers (NICs). The BCNM was founded on the idea of understanding New Media by bringing together three "modes of inquiry": Humanities, Arts/Design, and Technology. I was a co-founder of BCNM and recall distinguishing our plan from related programs at other universities by our strong foundation in the Humanities. BCNM is a highly cross-disciplinary unit with three cognizant Deans: Arts and Humanities, the College of Engineering, and the School of Information. I have served continuously on the BCNM Executive Committee, and on two faculty search committees (chairing the latter).

In June 1997, BCNM had 49 affiliated faculty and 9 affiliated grad students. By June 2010, BCNM had grown to include 130 affiliated faculty members from 35 departments and had 27 affiliated graduate students. In Fall 2007, BCNM, previously known as the CNM, added "Berkeley" to its name to acknowledge its constituency off campus. I revised the BCNM mission statement and worked with a professional design team to

develop the BCNM banner and logo (the Meissner body, a 3-dimensional Reuleaux tetrahedron), and redesigned and re-organized our website.

As of June 2010, BCNM courses accounted for over 2000 student credit hours. During my term, six of our DE students completed their PhDs, and 24 new PhD candidates were admitted to the program.

I was fortunate to work closely with Cathy Koshland, George Breslauer, and Tom Leonard to establish the BCNM Commons space in 340 Moffitt Library (next door to the Free Speech Café) in August 2008. The BCNM Commons is now used extensively for courses, seminars, meetings, and public events. It functions as a physical center for Berkeley's New Media community; faculty and students have card-key access to encourage regular interactions and communication.

In July 2009, in coordination with Paul Wright, Director of CITRIS, and Shankar Sastry, Dean of Engineering, I arranged an agreement that approximately 1000 square feet on the 4<sup>th</sup> floor of the new Sutardja Dai Hall (CITRIS) would be used to establish the BCNM Research Lab and Reading Room (BRL) for our graduate students, faculty, and visiting researchers. We were also granted an office space on the same floor for our administrative staff. Ten of our DE students have been granted desk space in the BRL, enhancing opportunities for cross-disciplinary collaboration.

During the review period, BCNM faculty individually raised over \$9 million in research funding. As Director, I worked with the founder and CEO of craigslist.org to solicit a major gift for the center. Their donation, matched by the Hewlett Foundation, established the *craigslist Distinguished Chair in New Media* with an endowment of \$3 million to permanently endow research in this new field. In January 2009 the cognizant Deans nominated a set of eligible faculty candidates and in July 2009, I was honored to be named the first recipient of this Chair.

In Fall 2009, I worked with Prof. Gail de Kosnik of Theater, Dance, and Performance Studies to bring pioneers of Social Media to UC Berkeley for a one day symposium on Dec 5 inspired by Habermas' idea of the Public Sphere. *The Future of the Forum: Internet Communities and the Public Interest* was attended by over 150 participants exploring how innovations such as Facebook and Twitter can expand participatory democracy and enhance public interest nationally and internationally. The symposium was presented with support from industry participants, craigslist.org and The Institute for the Future. Panelists included pioneers of social media Jimmy Wales (Founder, Wikipedia), Jim Buckmaster (CEO, craigslist), Mitchell Kapor (Co-Founder, Electronic Frontier Foundation), Dick Costolo (COO, Twitter), Reid Hoffman (Founder, LinkedIn) with Judith Donath (Fellow, Harvard's Berkman Center), Howard Rheingold (Author, Smart Mobs), Jane McGonigal (Director, Game Research, Institute of the Future), and Laura

Sydell (Reporter, National Public Radio). The events were recorded and are archived for the public at: <http://bcnm.berkeley.edu/fotf/archive.html>

During my term I worked to build outside engagement and created three Advisory Boards. BCNM International Advisory Board Members include Friedrich Kittler (Berlin) and Bruno Latour (Paris). BCNM National Advisory Board Members include Laurie Anderson, Shawn Brixey, Red Burns (NYU), Peter Lunenfeld (UCLA), Greg Lynn (UCLA), Lev Manovich (UCSD), Christiane Paul (New School), Luis von Ahn (CMU). BCNM Bay Area Advisory Board Members include Jim Buckmaster (CEO, craigslist), Gil Gershoni (CEO, Gershoni Creative), Marina Gorbis (CEO, Institute for the Future), Jaron Lanier, Graham Leggat (Director, SF Film Society), Susan MacTavish Best (CEO Best PR), Jane Metcalfe (CEO, Tcho), Peter Norvig (Director of Research, Google), David Pescovitz (co-Founder, BoingBoing), Howard Rheingold (Author), Nathan Schedroff (CCA), Laura Sydell (NPR), Adam Werbach (Saatchi Sustainability).

In 2009 I organized bi-weekly New Media Research Roundtables (with lunches co-sponsored with CITRIS). BCNM initiated, with the Arts Research Council, a collaborative project to conceive and develop a comparative analysis for an international archival Journal on Art and Theory of New Media, a rigorous publication for critical writing on new media art and technology by leading international scholars. UC Press and MIT Press have both expressed strong interest and this will be a primary project for BCNM's new Director, Prof. David Bates, in the years ahead.

The BCNM faculty and students are very excited about our potential to expand research activity, create a Master's certificate program, establish a new journal, refine our facilities for meetings and research on campus, build new partnerships, increase fundraising, present public programs, and extend our national and international reputation as a premier center for innovative research and teaching in the rapidly growing field of New Media.

Further information and full CV is available at:  
<http://goldberg.berkeley.edu/>

Respectfully submitted,

Ken Goldberg  
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