CHINTAN VAISHNAV

32 Vassar St.,   chintanv@mit.edu
Room 32-G822,   (617) 312 3834
Cambridge, MA 02139 USA   http://web.mit.edu/chintanv/www/

Education	**Massachusetts Institute of Technology (MIT)**	**Cambridge, MA**

Postdoctoral Researcher, across Computer Science & Artificial Intelligence Laboratory, Department of Political Science, and Sloan School of Management. Research focused on understanding the impact of Cyberspace on International Relations, and separately, on understanding technology and industry disruption. (January 2011-Present)

Carnegie Mellon University-Instituto Superior Técnico   Lisbon, Portugal
Postdoctoral Researcher, across Institute for Systems and Robotics (IST) and Heinz College of Public Policy (CMU). Research focused on Internet's impact on political engagement. (October 2009-December 2010)

Massachusetts Institute of Technology   Cambridge, MA
Ph. D. in Engineering Systems (or Technology, Management, and Policy), February 2010
Thesis: *The End of Core: Should Disruptive Innovation in Telecommunications Invoke Discontinuous Regulation*
Thesis Committee: Prof. Charles Fine (Chair), Dr. David Clark, Prof. John Sterman, and Prof. Kenneth Oye

Massachusetts Institute of Technology   Cambridge, MA
Master of Science in Technology and Policy Program, December 2005
Thesis: *Voice over Internet Protocol (VoIP): The Dynamics of Technology and Regulation*

Colorado State University (CSU)   Fort Collins, CO
Master of Science in Electrical Engineering, December 1996
Thesis: *Event Driven Simulation and Performance Evaluation of Robust Wavelength Division Multiplexed (WDM) Networks*

R.V.C.E, Bangalore University   Bangalore, India
Bachelor of Engineering in Electronics Engineering, August 1992
Thesis: *A Local Area Network (LAN) using SDLC/HDLC Protocol Controllers and 8086 Microprocessor based Single Board Computers*

Awards   US National Science Foundation, Integrative Graduate Education and Research Traineeship (January 2007-June 2009); FCT, Portugal (Portuguese equivalent of US NSF), Research Fellowship (October 2009-December 2011); Massachusetts Institute of Technology, Graduate Research Fellowship (August 2003-December 2006); Colorado State University, Graduate Research Fellowship (September 1994-August 1996)

Languages   Read, write, and speak English, Hindi, and Gujarati; Intermediate level Italian.

Computer &   C, C++, Java, Perl, Python, Shell Script; Linux-based systems/application
Modeling   programming; XHTML, XML, Javascript; MS Office, Dreamweaver.
Skills   System Dynamics, Agent-based modeling, Econometrics, Social Network Analysis, Domain Structure Matrix Analysis

Academic Research	**MIT, Computer Science and Artificial Intelligence, Dept. of Political Science, and Sloan School of Management** **Cambridge, MA** Introducing tools of complex socio-technical systems to modeling interdependencies between Cyberspace and International Relations. Project brings together engineers and political scientists from MIT and The Kennedy School of Government at Harvard University.

Independently, developing a detailed general model simulating the dynamics of technology and industry disruption from theories of technological change, competitive strategy, and unstructured interviews. Advising graduate-level empirical research. (January 2011-Present)

Carnegie Mellon University – Instituto Superior Técnico   **Lisbon, Portugal**
Integrated into a single theoretical model the current theories of cyber democracy, and demonstrated their limitations in explaining Internet's impact on political engagement. Offered integrated hypotheses that overcomes these limitations, and argued for the need to broaden the information bases of the contemporary research for it to pursue these hypotheses. Advised Portuguese Telecom Regulator (ANACOM) on policies for universal broadband. The research team consisted of faculty members from MIT, IST, and Carnegie Mellon University. (October 2009-December 2010)

MIT, The Program on Emerging Technologies (PoET)   **Cambridge, MA**
Participated in National Science Foundation's (NSF's) Program on Emerging Technologies. Investigated ways of improving responses to emerging technologies, by engaging early and explicitly with the pervasive uncertainty that is often under-recognized in technology assessment exercises. The group consisted of faculty and PhD students from engineering, political science, and technology history, and studied several emerging technologies using a rich mix of methods from all three disciplines. (January 2007-September 2009)

MIT, Communications Futures Program (CFP)   **Cambridge, MA**
Comprehensively modeled the disruption of technologies/firms in the communications value chain. Participated in creating a framework to understand value migration in voice, music and video communications value chains. The work was carried out as a part of Communications Futures Program consisting MIT researchers and industry partners worldwide. (August 2003-December 2006)

Colorado State University, Dept. of Electrical and Computer Engineering, Fort Collins, CO
Developed an event driven simulator in C and C++ to conduct performance analysis of several medium access control (MAC) layer reservation-based protocols proposed for packet switched, circuit switched, and hybrid Wave Division Multiplexed (WDM) optical networks. Simulated and analyzed throughput and delay in WDM networks with various user configurable network parameters. (August 1994-November 1996)

Industrial Research & Development	**Bell Labs, Lucent Technologies & Avaya Labs, Avaya Inc. Denver, CO** *Member of Technical Staff* Worked in the area of Voice and Data Convergence. Designed highly reliable, secure and maintainable converged solutions for voice, video, and communications. (January 1997-August 2003) • *Next Generation Processor Complex Project:* Led a team of eight engineers to architect, design and develop fault tolerance engine, error and alarm collection and reporting, and SNMP based network management system with a user interface for Avaya's largest next generation enterprise communication server. The project brought 99.999% reliability, offered by traditional voice switches, to the new converged system. The project was multidisciplinary and involved Avaya's R&D teams worldwide. Work contributed to positioning Avaya as leader in converged voice communications market. (November 1998-August 2003) • *OverLAN Project:* Architected and implemented the migration of circuit switch connectivity foundational to Lucent's products, to TCPIP. The solution has 30,000+ installations globally in more than 90% of Fortune 500 companies. (January 1997-November 1998)

Asea Brown Boveri Ltd. (ABB)   Bangalore, India
Systems Engineer, Industrial Process Automation Division
Designed process control and automation systems for integrated steel plants, including hardware design and software development for Programmable Logic Control (PLC) and Distributed Control Systems (DCS). As a member of the project execution team, coordinated R&D, manufacturing, testing, service support, and customers. Successfully executed five projects (September 1992-July 1994)

Social/Policy Entre-preneurship	**Design for the Disadvantaged (DfD) Lab, MIT-IIMA** Conceptualized, and setting up in partnership with India's National Innovation Foundation (NIF) and Indian Institute of Management, Ahmedabad (IIMA), a laboratory where formal and grassroots innovators can collaborate to design technology prototypes for overcoming the occupational hazards inflicting disadvantaged populations. (Present)

Smsvani
Founding an sms2web micro-philanthropy platform, where small local needs reported via text messages from mobile phones are aggregated and broadcasted globally for donors to make risk-free donations. (Present)

SensorMail
Participating in developing an innovative platform for diagnosing medical conditions using paper-based biosensors to enable prompt treatment, while harnessing the reach of postal system. (Present)

MITRAI: an MIT-TRAI Collaboration
Establishing collaboration between MIT and TRAI for knowledge sharing on contemporary issues in Internet and telecom regulation. (Present)

Teaching	**Carnegie Mellon University**	**Pittsburgh, PA**

Telecommunications Management, Guest Lecturer
Designed and taught a section on contemporary challenges in telecommunications regulation as a part of a graduate level course offered to the students of Heinz College, Tepper School of Business, and Engineering and Public Policy. (Spring Semester 2010)

Instituto Superior Técnico   **Lisbon, Portugal**
Contemporary Issues in Telecommunications Management, Visiting Professor
Designed and taught a section on dynamic complexity in regulating disruptive technologies such as the Internet. Introduced system dynamics modeling to the evaluation of regulatory decisions that are traditionally analyzed using microeconomic and econometrics models. (Fall Semester 2009; Fall Semester 2010)

Massachusetts Institute of Technology   **Cambridge, MA**
Science Technology and Public Policy, Teaching Assistant
Designed and graded exams, and comprehensive term papers on market and institutional failures in a breadth of topics related to science and technology policy. This is a core course for graduate students in Technology and Policy Program at MIT, and is taught in two large sections of graduate as well as undergraduate students. (Fall Semester 2006)

Business Dynamics, Teaching Assistant
Designed and taught recitations on system dynamics modeling. This is a flagship course for the Sloan School of Management at MIT, and attracts over 200 students from MIT, Harvard, Tufts, and Boston University each semester. (Fall Semester 2006; Spring Semester 2006)

Colorado State University   **Fort Collins, CO**
Advanced Computer Networks, Adjunct Faculty
Responsible for a complete graduate level course on advanced computer networks. Introduced simulation-based hands-on learning of network architecture and programming to a course traditionally focused on queuing theory. The shift led to doubling of class size in my two years of teaching it. (Fall Semester 1998; Fall Semester 1999)

Research Internships	**Indian Institute of Management (IIM)**	**Ahmadabad, India**

Participated as an independent researcher in a project jointly commissioned by the Government of India and Microsoft Research to understand the impact of information technology on the agricultural sector. Ethnography was the research method used. (Summer 2005)

Federal Communications Commission (FCC)   **Washington DC**
Performed detailed stakeholder analysis of over 3500 public comments in response to FCC's IP-enabled Services regulation. Participated in microeconomic modeling and analysis of wireless industry's then largest AT&T-Cingular merger under FCC's chief economist. (Summer 2004)

Indian Space Research Organization (ISRO)   **Bangalore, India**
Developed a token ring network using Intel 8086 microprocessor and compatible chipset. (August 1991-July 1992)

University Service	**MIT, Baker House, Graduate Resident Tutor** For five years, served as a live-in mentor in an MIT undergraduate dormitory, Baker House, to support MIT undergraduates as their first point of contact for academic and other campus life needs. (Fall 2005-Spring 2010)

University Service

MIT, Baker House, Graduate Resident Tutor
For five years, served as a live-in mentor in an MIT undergraduate dormitory, Baker House, to support MIT undergraduates as their first point of contact for academic and other campus life needs. (Fall 2005-Spring 2010)

Colorado State University, Member of Industrial Associates Board (IAB)
As an elected member of the Industrial Associates Board, advised CSU's engineering school on aligning their research and teaching to industry trends. (2001-2003)

Student Leadership
Executive Committee Member, MIT Heritage Arts Society (MITHAS) (Fall 2004-Fall 2007)
Executive, Indian Student Association, MIT (called Sangam) (Fall 2004-Spring 2006)
President, Indian Student Association, Colorado State University (Fall 1995-Spring 1996)

Press

"*Why telecom regulation needs to change*," October 6, 2010, MIT News.

Selected Talks

February 23, 2012, ITS 2012, New Delhi, India, "Regulator's Dilemma: How to Balance Compliance and Innovation as Internet Disrupts Traditional Technologies."

July 14, 2011, Telecom Regulatory Authority of India (TRAI), New Delhi, "From Herding Sheep to Herding Cats: Balancing Regulation and Innovation in the Modular Age of the Internet."

July 1, 2010, London Business School, UK, "Innovation and Industry Dynamics: Endogenizing Entry, Architecture, Price, and Quality to Assess Disruptive Opportunities and Defenses."

June 30, 2010, Computer Laboratory, Cambridge, UK. "Contemporary Challenges in Telecommunications Regulation."

June 28, 2010, Cambridge University, UK, "From Herding Sheep to Herding Cats: Balancing Regulation and Innovation in the Modular Age of the Internet."

October 24, 2008, Communications Futures Program, MIT, Cambridge, MA, USA, "Who Will Profit from Social TV Service?: Insights and Queries From A Technology Disruption Model"

July 23, 2008, International Conference of System Dynamics Society, Athens, Greece, "Does Technology Disruption Always Mean Industry Disruption?" **(Presented in the plenary session)**

January 16, 2008, The Ministry of Internal Affairs and Communications, Tokyo, Japan, "Regulating VoIP – A discussion"

December 10, 2007, Federal Communications Commission (FCC), Washington, DC, USA, "The End of Core: should disruptive innovation in telecom invoke discontinuous regulatory response?"

July 25, 2007, Oxford Internet Institute Summer Doctoral Program (OIISDP), Berkman Center for Internet and Society, Harvard University, Cambridge, MA, USA, "The End of Core: should disruptive innovation in telecom invoke discontinuous regulatory response?- A Doctoral Research Proposal"

June 26, 2007, Technology, Management and Policy Graduate Consortium (TMPGC). TMPGC 2007 Carnegie Mellon University, Pittsburgh, PA, USA, "The End of Core: should disruptive innovation in telecom invoke discontinuous regulatory response?" **(Won the best presentation honor)**

Publications   **Under Review**
Chintan Vaishnav, "*From Herding Sheep to Herding Cats: Balancing Regulation and Innovation in the Modular Age of the Internet*", under review at *Telecommunications Policy Journal*. (Originally published at TPRC 2010).

Chintan Vaishnav and Charles Fine, "*Incumbent's Dilemma: Innovations Strategy Amidst Dynamic Complexity*," under review at *Management Science*.

Chintan Vaishnav, Michael Sechrist, Daniel Goldsmith, and Nazli Choucri. "*The Dynamics of Undersea Cables: Can the Old Modes of Governance Cope with New Demands of the Cyberspace*," International Conference of System Dynamics, St. Gallen, Switzerland, July 2012.

Peer Reviewed
On Technology and Policy…
(Forthcoming) Chintan Vaishnav, Nazli Choucri, and David Clark, "*Cyber International Relations as an Integrated System*," The International Engineering Systems Symposium, Delft, The Netherlands, July 2012.

Chintan Vaishnav, "*Regulator's Dilemma: How to Balance Compliance and Innovation as the Internet Disrupts Traditional Technologies*", International Telecommunications Society Regional Conference, New Delhi, India, 2012.

Chintan Vaishnav and Pedro Ferreira, "*Internet and Political Engagement: A New Integrated Model of Cyber-Democracy*", Telecom Policy Research Conference, Arlington, VA, 2011.

Chintan Vaishnav, "*From Herding Sheep to Herding Cats: Balancing Regulation and Innovation in the Modular Age of the Internet*", Technology Policy Research Conference, Arlington, VA, 2010.

Chintan Vaishnav and Charles. H. Fine, *'A dynamic assessment of VoIP innovation, adoption and their interaction with CALEA regulation,'* Technology Policy Research Conference, Arlington, VA, 2006.

On Technology Strategy…
Chintan Vaishnav, *'Does Technology Disruption Always Mean Industry Disruption?,'* International Conference of System Dynamics Society, Athens, Greece, 2008.

Chintan Vaishnav, A. Khakifirooz, et al., *'Punishing by Reward: When Your Performance Bell-curve Stops Working For You,'* International Conference of System Dynamics Society, Nijmegen, The Netherlands, 2006.

On Technology (Computer Networks)…
S. A. Abd-Elmalak, C. Vaishnav and A. P. Jayasumana, *'Performance of Robust WDM Fast Circuit-Switched Networks with Token Passing in Control Channel,'* International Journal of Communication Systems, Vol. 15, pp 239-255, 2002.

Chintan Vaishnav, Matt Nieberger, A. P. Jayasumana, and Jon Sauer, *'Design and Performance of a Robust WDM Network,'* SPIE's International Symposium on Optical Science, Engineering, and Instrumentation 1996, Aug. 4-9, 1996.

Tarek El-bawab, Chintan Vaishnav, Anura P. Jayasumana, Henryk Temkin, Jon R. Sauer, and Heinz A. Willebrand, *'Medium Access Control Protocols for Robust Wavelength Division Multiplexed (WDM) Local Area Networks,'* Proc. International Communications Conference (ICC)'96, v. 2, pp 1099-1106, June 23-27, 1996.

Additional Publications
Chintan Vaishnav, *'Information Flows in the Traditional Knowledge and the Grassroots Innovations Value Chains for Agriculture - A Report from Gujarat,'* submitted to the Government of India, 2005.

Chintan Vaishnav, '*The Internet: A Case of How Government's Involvement and Exit Influences the Creation of Global Standards,'* NSF PoET Working Paper.

References   **Prof. Charles Fine**
Chrysler LFM Professor of Management and Engineering Systems, MIT
Email: charley@mit.edu
Phone: 617-253-3632
Web: http://web.mit.edu/ctpid/www/people/Fine.html

Dr. David D. Clark
Computer Science and Artificial Intelligence Laboratory, MIT
Email: ddc@csail.mit.edu
Phone: 617-253-6003
Web: http://en.wikipedia.org/wiki/David_D._Clark

Prof. John Sterman
Jay Forrester Professor of Management and Engineering Systems, MIT
Email: jsterman@mit.edu
Phone: 617-253-1951
Web: http://jsterman.scripts.mit.edu/

Prof. Kenneth Oye
Professor of Political Science, MIT
Email: oye@mit.edu
Phone: 617-253-3412
Web: http://web.mit.edu/polisci/faculty/K.Oye.html