Overview

Digital technologies have a fundamentally transformative effect on business and society, changing the economics of a wide range of industries, reshaping marketing channels, creating new business models, inducing regulatory upheaval, and altering the language and “spaces” of consumer interaction. Music, broadcast media, publishing, consumer electronics and the biosciences are early examples of industries that digital has disrupted: the changes we are witnessing in the “sharing economy” extend these impacts well into industries we traditionally think of as non-digital. The nature of search, advertising, information acquisition and influence have been fundamentally altered by digital platforms, often shifting the role of firms from controlling messaging to mediating conversations.

This is a doctoral-level course about these changes induced by digital technologies. Three technological invariants that have made digital technologies different from the general-purpose technologies that preceded them: (1) the rendering of things as information, and especially digitally represented information, (2) the sustained exponential growth of hardware power, bandwidth, storage, and the accompanying miniaturization of IT-based devices, and (3) the increase in programmability, in a modular way, of software that is contained in or underlies IT products and services. The course does not delve deep into these invariants or technological details, but rather, explores a series of research questions about the ensuing consequences that are of economic, business and social importance.

A few examples: Digitization and the sustained increase in hardware power have led to an ongoing separation of information from its artifact across a number of industries, altering production cost structures, shifting channel power to the firms that control the “interfaces,” and reshaping the landscape of copyright law. Moore’s Law and modular programmability make a growing set of industries platform-based and subject to network economics. Such platforms also generate new market layers, ranging from simple search-induced advertising and marketing to more complex price discovery and fulfillment systems. The growing popularity of these markets combined with the numerous Internet-based platforms price dispersion, facilitates the generating of online content by users, creates and makes visible a variety of online networks (social and otherwise) that influence consumer choice, and alters the distribution of choices between popular and “long tail” products. The creation of digital currencies alters the nature of money and the division of power between platforms and governments. The data trails we generate as a by-product of our online commercial and social activities alter how observable our actions are, reshape individual privacy, and create new forms of “conspicuous consumption.” Digital technologies also affect the productivity of organizations, the effectiveness and viability of different institutional structures and the ability of organizations to create and disseminate innovation. This course addresses both the foundations of and current research into each of these consequences.
Topics for 2015

• The Paradigm of Economics and the Economics of Digital Industries
• Digital Goods: Pricing, Digital Rights Management and Intellectual Property
• Sponsored Search Advertising and the Google Revolution
• User-Generated Content and NLP: The Economic Information in Textual Data
• Social Marketing: Identifying Influence in Peer Networks
• Digital Marketing and Channel Attribution
• Electronic Markets and Long-Tail Economics
• Social Media, Brand Equity and Digital Observability
• Privacy and (Consumer) Choice
• Platform Economics and Network Effects
• Peer-to-Peer Markets and the Sharing Economy
• Bitcoin and Digital Payment Systems
• Modeling Technological Revolutions
• The Emerging Economics of Mobile and Wearable Technologies

Expectations and Deliverables

There is no textbook. Each topic has an associated set of research papers and/or book chapters. Since this is a course designed for doctoral students, a subset of students will be assigned to lead the presentation of a subset of the papers listed under “Reading”. During each session, I will teach some of the foundational material in the readings, followed by student presentations of these papers.

There will also be additional readings I will provide on each topic, and these are exactly what you’d expect: I think you will benefit from reading them, but it is up to you whether you do or not.

You will be assigned 1-2 discussion questions on most topics. After reading the required papers, each student will formulate and type up your answers to the questions and email them to me by midnight on the day before our session. I will provide more specific guidance on the scope of these assignments in the session during the week before they are due.

I will also define a course paper with each of you over the first few weeks of the course. Depending on your interests, this can take the form of a small empirical research project, the development of a mathematical model, or an in-depth exploration of the literature associated with a specific topic. In special cases, I may allow two students to work as a team. We conclude the course with presentations of these papers.