

Abstracts for a Selection of Public Talks by Nicholas A. Christakis, MD, PhD, MPH

“Social Network Interventions” or “Social Networks for Good”

Human beings choose their friends, and often their neighbors and co-workers, and we inherit our relatives; and each of the people to whom we are connected also does the same, such that, in the end, we assemble ourselves into large-scale, face-to-face social networks. Why do we do this? And how might a deep understanding of human social network structure and function be used to intervene in the world to make it better? Here, I review research from our lab describing three classes of interventions involving both offline and online networks that can help make the world better: (1) interventions that rewire the connections between people; (2) interventions that manipulate social contagion, facilitating the flow of diverse phenomena within groups; and (3) interventions that manipulate the position of people within network structures. I illustrate what can be done using a variety of experiments in settings as diverse as fostering cooperation or innovation in networked groups online to fostering widescale behavior change in developing world villages and other settings. I also discuss experiments with “hybrid systems” comprised of humans and simple artificial intelligence (AI) agents interacting in small groups. Overall, by taking account of people's structural embeddedness in social networks, and by understanding social influence, it is possible to intervene in populations to enhance desirable properties as diverse as health, wealth, cooperation, coordination, and learning.

“Blueprint: The Evolutionary Origins of a Good Society”

Scientists and citizens often focus on the dark side of our biological heritage—on our capacity for aggression, cruelty, prejudice, mendacity, and self-interest. But natural selection has also given us a suite of beneficial social features, including our capacity for love, friendship, cooperation, and teaching. Beneath all our inventions—our tools, farms, machines, cities, nations—we carry with us innate proclivities to make such a good society. Indeed, our genes affect not only our bodies and behaviors, but also the ways in which we make societies, therefore resulting in societies that are surprisingly similar worldwide. Using many, wide-ranging examples—including diverse historical and contemporary cultures, communities formed in the wake of shipwrecks, commune dwellers seeking utopia, village settings throughout the world, online groups of people and artificially intelligent bots, and even the tender and complex social arrangements of elephants and dolphins that so resemble our own—I show that, despite a human history replete with violence, we cannot escape our social blueprint for goodness. In a world of increasing political and economic polarization, it's tempting to ignore the positive role of our evolutionary past. But I show how and why evolution has placed us on a humane path—and how we are united by our common humanity.

“Social Artificial Intelligence”

The impact of artificial intelligence (AI) transcends the simple case of human-machine interactions and extends to human-human interactions in the presence of machines. Here, I explore such “hybrid systems” of humans and AI. I show how the careful yet simple programming of AI agents can enhance the performance of human groups, making people within such groups better able to cooperate, coordinate, innovate, and communicate, ultimately contributing to their superior performance. On the other hand, both simple and complex forms of AI (such as large language models) can also do the opposite, harming groups of people and our society as a whole. Our experiments show how AI agents can affect social processes and human performance in settings as diverse as people working together online or coordinating their movement on roadways. Our work, in short, does not involve the development of super-smart AI to replace human cognition, but rather “dumb AI” to supplement human interaction. These findings reveal what the disruptive introduction of AI into our lives means for the future of human social behavior. And they suggest ways to design AI—as a type of “social catalyst”—so as to make sure it supports a utopian rather than dystopian future.

"Social Network Biology" or "How Social Connection Is Embodied"

Natural selection has shaped our species to be social and has endowed us with important capacities, such as love, friendship, and cooperation. Our biology reflects this. Our bodies respond to, and foster, social interactions in myriad ways. Here I provide an overview of work in our lab regarding this phenomenon. I discuss how our bodies respond to social isolation, including via circulating biomarkers in our blood. I review evidence that we have evolved the capacity to pick particular people as suitable mates. I show how our genes also shape how many friends we have, where we are located within social networks, and even who we pick as friends (i.e., the people who become a kind of “functional kin” to us). In a line of other work, using a large sample of isolated villages in Honduras, I show how the social networks we form depend on, and affect, our gut microbiome. Commensal microbes circulate in our social networks and these microbes in turn produce chemicals in our bodies that can shape both our behavior and our health. Finally, I discuss ongoing work in which we are exploring the fascinating topic of human social chemosignaling. Humans evolved to produce and detect odors that signal important social phenotypes, suggesting that we can smell out people who are suitable friends to us, or modify the behavior of the people around us by the volatile organic compounds our bodies emit. Human society is deeply biological.

“The Rise and Fall of the COVID-19 Pandemic”

As the coronavirus pandemic swept through American society in 2020, killing 750,000 people before the end of 2021 (and still counting), it followed a path worn by other respiratory pandemics of the past century, and indeed by other worldwide plagues stretching back millennia. What happens when the great force of a deadly germ meets the enduring reality of our evolved social nature? Drawing on epidemiology, sociology, medicine, public health, history, virology, and other fields, this talk explores what it means to live during and after a plague — an experience that is paradoxically uncommon to the vast majority of humans alive today, yet deeply fundamental to our species. Unleashing new divisions in our society as well as new opportunities for cooperation, this 21st-century pandemic upended our lives in ways that have tested our frayed collective culture. The upheaval caused by COVID-19 will be felt in the coming years economically, politically, and socially. Yet, the end of the pandemic is also following a typical path, one that has been worn for centuries.