Research Statement

Jonghyun Park
Department of Economics, Virginia Tech
jongh2419@vt.edu | jonghyun-econ.github.io

My research asks how people and organizations turn available evidence into useful knowledge and better decisions. I am a microeconomic theorist working on information economics, learning, and networks. I study how the records people retain, the costs of finding and processing evidence, and the messages they exchange shape what they learn. A central question connects these projects: which information must people retain or acquire to make effective decisions, and which details can they leave unresolved? My broader goal is to understand how records and communication systems can preserve the value of evidence for current choices and future learning.

Job Market Paper: Belief Compression and False Certainty

How should an organization summarize what it has learned when new evidence may change the interpretation of earlier observations? In my job market paper, *Recursive Bayesian Compression and False Certainty*, I study what happens when a record preserves separate assessments but discards their relationship. Consider a manager assessing a project's quality and whether its losses reflect growth or solvency problems. Her record may accurately preserve each assessment while omitting how project quality and the source of losses are related. That omitted relationship affects what she can learn from the next observation.

The learner observes every information, knows the correct statistical model, and updates by Bayes' rule. After each update, she retains the probability distribution of each of two unknown features but discards the relationship between them. She treats the stored distributions as independent when forming the belief used to interpret the next signal. I show that, in a model where each feature has two possible values, this process can lead to certainty about a false state with positive probability, while a fully Bayesian learner observing the same realized signals learns the truth. The result survives small changes in how states generate signals and can arise from initial beliefs that are not close to the false conclusion.

The mechanism is that separate assessments can reinforce one another even when their combined explanation fits the evidence poorly. If the manager attributes losses to growth, the evidence may support her belief that the project is strong; if she believes the project is strong, the same evidence may support the growth explanation. I characterize which states the learner can become certain of by comparing each candidate with alternatives that change only one feature. A selected state must explain the data at least as well as each such alternative, and a state that performs strictly better in every comparison attracts nearby beliefs. An explanation can therefore survive separate revisions even though changing both assessments would fit the evidence better.

Economic decision makers increasingly face large amounts of information about closely related uncertainties. As emphasized in the literature on correlation neglect, one way people simplify complex information is to evaluate related uncertainties separately, overlooking the relationships among them. My research shows how this simplification shapes where learning can ultimately settle and characterizes the mechanism behind persistent mistakes. In particular, a false explanation can become stable because it fits the evidence better than alternatives that revise one assessment

at a time, even when changing several assessments together would provide a better explanation. This finding helps explain why additional evidence may reinforce an established interpretation rather than lead decision makers to reconsider it. The mechanism has potential applications in various ways, such as lending, where assessments of borrower quality and economic conditions interact, and in organizational evaluation, where judgments about performance depend on the circumstances surrounding observed outcomes. Building on these findings, I plan to study how organizations manage multiple related uncertainties, which relationships they choose to preserve when record-keeping is costly, and how these choices affect long-run learning and decision-making.

Costly Access and Information Processing

Two papers with Sudipta Sarangi and Hector Tzavellas study how the costs of using information affect the benefits of having more of it. One examines how people process evidence they already observe; the other examines the earlier task of finding and validating useful evidence.

In *Information Overload under Rational Learning*, we show how an optimal response to processing costs can cause accuracy to decline as more signals become available. An agent observes all available signals and chooses an estimation rule to minimize mean squared error plus processing cost. A larger information environment can make an estimate that responds to evidence more costly to use, even when the estimate relies on only a few signals. When any sustained response to evidence eventually becomes prohibitively costly, the optimal estimate approaches the prior mean, which uses no new information and is costless in the model. Under this condition, information overload occurs exactly when the optimal estimate improves on prior accuracy for some finite number of signals. The paper explains why the ability to ignore additional signals need not protect accuracy when processing costs depend on the surrounding information environment.

In *Free Disposal with Costly Access*, we ask when a larger collection of recorded knowledge makes useful evidence easier to obtain. Although information may be available, a learner must first identify relevant records and verify the evidence they contain. We measure accessibility by the minimum cost of obtaining a particular signal about the unknown state and establish conditions under which these costs determine whether one information environment protects welfare across all Bayesian decision problems. We then study how the costs of finding and validating evidence shape information acquisition. In particular, we distinguish the cost of searching through irrelevant records from the cost of verifying relevant ones and characterize when a learner finds it worthwhile to investigate additional information. The results help explain why people may rationally leave available information unused: the potential benefit of learning must justify not only the cost of acquiring evidence but also the effort required to find and verify it.

Communication and Learning in Networks

My research on networks examines how people learn from one another when they communicate through simplified messages or observe only their neighbors. In *Finite Communication and the Nonmonotone Value of Network Mixing*, agents combine private evidence with information from others to form continuously varying assessments, but communicate through a finite set of categories. For example, economic forecasters may continuously revise their estimates of recession risk as new data arrive, yet communicate their outlook simply as low, moderate, or high risk. As a result, new

information reaches others only when an assessment crosses a category threshold. I characterize conditions under which a common message becomes self-reinforcing despite continued private evidence. In a two-group network, moderate communication across groups can help a message reflecting the true state spread, while excessive communication can draw both groups into a less informative common category before that message spreads. Consequently, more communication can initially improve collective accuracy but eventually reduce it. The result suggests that greater agreement among forecasters or institutions need not reflect more accurate information aggregation. When people exchange simplified assessments, additional connections may reinforce a common interpretation rather than help independent evidence reach others. This has implications for how organizations, financial institutions, and forecasting networks communicate information: the value of expanding communication depends not only on who exchanges information, but also on how precisely their messages convey what they know.

In *Network Uncertainty and Learning from Local Observations*, written with Promit K. Chaudhuri, Sudipta Sarangi, and Hector Tzavellas, we ask whether players need to know the entire network to make decisions consistent with its true structure. Players interact repeatedly on a fixed network whose links they do not fully know, using their neighbors' actions to learn about the network. We show that, under a common prior and with players maximizing their current expected payoffs, their actions eventually coincide with a Nash equilibrium of the true network, even when some players remain uncertain about its structure. We further characterize when observations of neighbors' actions allow players to identify the true network. The main implication is that learning enough to make equilibrium decisions does not necessarily require learning the entire environment. Local observations can provide sufficient information for players to respond appropriately to their network, even when some uncertainty remains. This finding also has implications for predicting economic behavior: complete-information Nash equilibrium can describe long-run outcomes even when players themselves do not fully know the network in which they interact.

Future Research

My research is broadly concerned with how individuals and organizations acquire, process, and communicate information to make decisions. Across my projects, a central theme is that having more information does not necessarily lead to better learning or more accurate decisions. What people ultimately learn also depends on how evidence is organized, which relationships among observations are preserved, and how information is exchanged with others. Building on these findings, I aim to develop a broader understanding of how limitations in information processing and communication shape beliefs, decisions, and economic outcomes. I am particularly interested in identifying when these limitations generate persistent mistakes and when individuals can make effective decisions despite having incomplete information.

These questions have applications across several areas of economics. In financial markets, lenders and investors often rely on multiple reports that may contain overlapping information, potentially leading to excessive confidence when the reports are treated as independent. Within firms, managers may evaluate productivity, demand, and employee performance separately, even though these assessments depend on common economic conditions. My research provides a foundation for studying how such information practices affect credit decisions, investment, forecasting, and organizational performance. I also plan to connect these theoretical mechanisms to empirical and

econometric research by examining how differences in information storage, source identification, and communication affect belief revisions and observed decisions. These applications can help distinguish mistakes arising from incomplete records, repeated evidence, and limited attention to relevant information.

My future theoretical research will further investigate how the structure and perceived value of information influence learning. One direction studies reference-dependent learning costs, where individuals find evidence that challenges an established belief more costly to acquire or process. I examine how this concern can redirect learning toward less threatening uncertainties, allowing individuals to remain informed about some aspects of their environment while maintaining mistaken beliefs about others. Another direction studies repeated evidence, where multiple observations originating from the same source are mistakenly treated as independent information. I investigate how the distribution of repetition across sources affects the speed and accuracy of learning, and why selectively removing repeated observations need not always improve learning. More broadly, I plan to develop theoretical models of how individuals and organizations choose which information to investigate, verify, retain, and communicate. Together, these directions aim to deepen our understanding of how information environments shape learning, persistent beliefs, and economic decisions.