
Kitsune Ai システム / Physical Intelligence Lab

POSITION PAPER 03 / KITCHEN FIELD EXPRESSION

PHYSICAL-FIRST INTELLIGENCE IN THE KITCHEN

A KITSUNE PHYSICAL-FIRST INTELLIGENCE FIELD PAPER

Food, lived understanding and the capacity to act

Life is how we know.

A scientific perspective and proposed research program on food as an entry into the body, relationships, skilled practice and collective life.

PRIVATE · PERSONAL · PROFESSIONAL · PUBLIC

Four Moment Types that allow the user to enter the thesis

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Abstract

Digital systems often infer purpose from behavioral residue: clicks, transactions, uploaded artifacts, location traces, and completion records. Physical-first intelligence proposes a different relationship. Technology is something people live with, not an environment they must live through. Seeded Earth, Place, and Space guardrails establish whether a person is present. That binary admission governs Earth → Place → Space → Thing → Utility: if the person is not present in the eligible context, the Utility does not open. Once eligible, the Utility binds a Task, an Action, and an Agent—Human Intelligence (HI) or Artificial Intelligence (AI)—to the active purpose.

Food gives this relationship a consequential field of inquiry. Obtaining, preparing and sharing food connect the development of human societies with the daily experience of being alive. A meal involves a body, material resources, learned practices and relationships. It can express care, necessity, pleasure, identity or obligation. What someone can eat, what they believe they should eat and what they can make possible for others depend on circumstances that a purchase history or nutritional profile cannot establish alone.

The inquiry proceeds through **four Moment Types that allow the user to enter the thesis: Private, Personal, Professional and Public**. Each establishes a chosen purpose and the authority under which an experience may be explored. Food can become a mirror through which people investigate their bodily experience, understand relationships, develop culinary capability and contribute to collective life. These inquiries connect disciplines while preserving their different standards of evidence.

We introduce spatiotemporal food streams as person-governed accounts of how intentions, resources, actions and consequences relate across times, places and people. Someone may begin with tomorrow's meal, a present sensation or an earlier experience. The Kitchen Data-Logic-Action (DLA) Unit supplies an authored applied structure: a person's goal is related to a Method, appropriate Goal-Based Tasks (GBTs), selected evidence and reviewed Perspective. This makes the relationship between intended value, actual practice and supported findings available for investigation. The person decides what the experience means and whether to carry any understanding into later action.

The research program begins with lived food practices across contrasting circumstances, then tests whether this governed relationship with AI improves understanding and expands practical possibilities. Its comparisons distinguish the contribution of AI from structured reflection, material assistance and institutional change.

RESEARCH STATUS

This is a scientific position and proposed research program. The Kitchen DLA is an authored instrument under development. The paper makes no claim that Kitsune has demonstrated improvements in health, relationships, capability or access.

1 Food as an entry into the thesis

The Physical Intelligence Lab asks how technology can help people understand and direct their lives while remaining answerable to human purpose and lived consequence. Paper 00 establishes that position. Paper 01 develops education as its first scientific field expression, where learning brings intent, effort, interpretation and later application into view. Kitchen extends the inquiry into a daily practice through which people sustain themselves and one another. [1, 2]

Food deserves this attention because the questions it opens are both intimate and shared. Hunger, satisfaction, fatigue, anticipation, comfort, preparing something well and feeding another person can each begin an inquiry. An experience that matters to someone supplies a reason to learn. The system's task is to help make that inquiry intelligible, connect relevant knowledge and circumstances, and return a Perspective the person can examine.

The Lab's central question is:

CENTRAL RESEARCH QUESTION

Can physical-first intelligence help people use their lived relationship with food to understand themselves, care for others and develop greater capacity to act—while retaining authority over what that experience means and what happens next?

The phrase **greater capacity to act** carries a demanding test. A person might become able to prepare something previously beyond their skill, make a useful question about their body more precise, coordinate food around an unpredictable working day or help a group eat with greater care. The research must establish whether a practical possibility has changed, what enabled the change and whose effort sustained it. Feeling encouraged by an answer is one observation; being able to do something with it is another.

We use *Kitchen* to name the field expression through which these relationships become concrete. Its inquiry can extend across a home, a shop, a workplace, a professional kitchen or a community setting. The actual Places, Spaces and Things remain specific. A person's relationship with food does not begin and end at the kitchen counter.

Our position is that food offers a foundational entry into AI's practical application in society. Its significance comes from the human activity at stake. The research contribution would be evidence about when a governed relationship with AI helps someone enlarge what they can understand, choose and make possible in their life. The four Moment Types allow that question to be entered from different purposes without assigning a single purpose to everyone.

2 Food and human development

Food joins bodily survival to knowledge, cooperation and the organization of social life. Anthropology has studied eating as a way to understand political economy, ritual, identity and memory. Mintz and Du Bois place these questions within a substantial intellectual tradition: food matters in its own right and as a means of examining how societies work. That tradition supplies a serious foundation for the Kitchen inquiry. [3]

The control of fire and the application of heat to food belong within this history. Archaeological work at Gesher Benot Ya'aqov combines fish remains, spatial associations and evidence of heating to support an interpretation of cooking in the deep human past. The precise beginnings of intentional cooking remain uncertain. For this paper, the consequential point is that food preparation is an ancient relationship among materials, practical knowledge, place and coordinated activity. [4]

Cultivation and domestication changed relationships among people, other species and land through diverse regional histories. Zeder's account of the Mediterranean describes multiple domestication lineages and varied processes of adoption and movement. These histories resist a single ladder from foraging to farming. They invite attention to the knowledge and institutions through which different populations secured food and transformed their surroundings. [5]

That scale of inquiry can meet an ordinary preparation. An inherited Method may carry knowledge of seasonal availability, preservation, the behavior of a particular ingredient or how to feed many people with limited equipment. Someone applying it today encounters a different wage, household, climate, supply or working schedule. Understanding the adaptation requires attention to what the practice accomplished before, what matters now and what remains possible.

A scientific account of Kitchen should therefore examine how food knowledge travels. Who taught a Method? Which parts are expressed in words, and which become intelligible through touch, timing, observation or repeated practice? What changes when a person moves to another place, acquires a different tool or prepares food for people with unfamiliar requirements? These are proposed research questions about transmission and adaptation, not assumptions that inherited practice is uniform or unchanging.

Food also has an expressive life. A dish can carry an account of origin, an aesthetic choice or a remembered relationship. Preparing it may involve artistic judgment as well as technical skill. A useful system should make room for those meanings to be expressed by the people who hold them. The history of food gives the Lab a reason to preserve authorship, circumstances and plurality when AI participates in the next application of human knowledge.

3 Choice within material circumstances

An informed choice has to be physically and socially possible. Money, available time, transport, equipment, storage, health, responsibility and access shape what a person can attempt. The research should examine how people navigate these conditions and where a useful change becomes achievable. These circumstances belong within the account of purpose itself: wanting a meal that children will eat when there is no money to replace it is a specific intention.

Ethnographic research makes this distinction tangible. Daniel's study of caregivers in the Boston area found that the risk of wasting unfamiliar food shaped purchasing decisions. Families with fewer resources could have less room to absorb unsuccessful attempts at introducing new foods. The price of a healthy eating experiment could therefore include the food a child rejected. This finding concerns the families studied; it does not describe a universal attitude among people with low incomes. [7]

Fielding-Singh's research with families in the San Francisco Bay Area examines how material conditions shaped the symbolic meanings parents attached to food. Providing requested food could express care under scarcity; limiting particular foods could express responsible parenting in circumstances of abundance. The study helps explain why apparently similar decisions need to be understood in relation to different experiences of deprivation, security and responsibility. [6]

At a different scale, Hirvonen and colleagues' analysis of diet affordability demonstrates why dietary recommendations must be evaluated against available income. Its global estimates used 2011 prices and incomes; they are evidence of a structural problem, not a current count for this paper's proposed participants. [8]

Controlled research also shows why the offered food environment deserves attention. Hall and colleagues' small inpatient randomized crossover trial found higher intake during an ultra-processed diet condition than during an unprocessed condition. The result concerns the tested diets and setting; it cannot explain an individual's eating from a transaction record. [11]

Kitchen should investigate both what a person knows and what they can afford to try. A suggestion that requires another appliance, a longer break, repeated purchases or unpaid preparation by someone else may fail to fit the intended life. A technically feasible recipe can still be socially impractical. The research must ask who gains flexibility, who bears extra work and whether a change remains possible once research support ends.

This opens two connected lines of inquiry. One concerns decisions and adaptations available within current conditions. The other concerns conditions that require another actor to change: a workplace timetable, institutional purchasing, access to shared equipment or a community provision. An AI proposal cannot create a missing resource by recommending it. It may help make the constraint visible, coordinate an available response or inform an institution willing to act. Each possibility needs its own evidence.

4 The body as a point of inquiry

Food offers a familiar entry into physicality. Someone can notice hunger, fullness, energy, discomfort or an emotional response without first adopting a weight goal or a comprehensive account of their physiology. These experiences can become questions about how they live. Calling food a **mirror** describes that opportunity for inquiry: the person begins with something lived and personally meaningful, then asks what might help them understand it.

The inquiry can accompany changing life circumstances: learning to feed oneself, gaining independence, providing care or adapting preparation as abilities change. Studies should examine how bodily experience, responsibility and available support meet at the life stage under investigation. Age-specific participation and expertise belong in the relevant protocol.

Biology gives this inquiry substance. Digestion makes nutrients available for energy, growth and repair; nerves and hormones participate in communication among the digestive system and brain. A lived account can help situate an observation within meals and circumstances. Establishing a particular physiological mechanism requires appropriate measurements and expertise. [9]

Psychological and nutritional research justify focused investigation. In an experience-sampling study, Swami and colleagues found associations between self-reported hunger and anger, irritability and reduced pleasure. The study did not establish that hunger causes most decisions or identify glucose as the mechanism. The small SMILES randomized trial found greater improvement in depressive symptoms with dietitian-delivered dietary support than with a matched social-support condition, as an adjunct to existing care. Its result concerns a defined clinical intervention. [10, 13]

Metabolic health and healthy ageing also merit serious attention. The Diabetes Prevention Program demonstrated reduced diabetes incidence through a supported lifestyle intervention in adults at high risk. Tessier and colleagues found associations between dietary patterns and a composite measure of healthy ageing in two long-running cohorts. These studies support research into achievable changes and longer-term outcomes. They do not establish that a Kitchen application extends life or that one glucose strategy fits every person. [12, 14]

Kitchen's initial contribution is to help a person frame a question, identify relevant circumstances and decide what kind of evidence would be useful. An account of afternoon fatigue could help organize a conversation with a qualified professional. It cannot, by itself, diagnose a chemical imbalance or show that a particular food caused the fatigue. If a study introduces physiological measurement or clinical guidance, the measurement model, responsible expertise and intervention must be specified separately.

The proposed boundary to explore is whether someone gains a more useful relationship with their own experience. Can they distinguish what they noticed from what they inferred? Can they identify a change they can actually attempt, or recognize when further help is needed? Bodily understanding, pleasure and care remain legitimate purposes even when weight loss is irrelevant to the inquiry.

5 Four Moment Types

Private, Personal, Professional and Public are four Moment Types that allow the user to enter the thesis. A Moment is a bounded context in which purpose, participants, evidence, processing and review become specific. The type is chosen before or at activation and constrains what may happen within it. The same person can enter through any of the four. [1]

Moment Type	Possible entry into the food inquiry	Authority that must remain legible
Private	Understanding a bodily experience, a habit or a personally significant question.	The individual and any explicitly authorized circle determine the inquiry and disclosure.
Personal	Preparing, eating and learning within family, friendship or trusted relationships.	Each participant controls their account and its permitted sharing.
Professional	Applying culinary knowledge, coordinating service or feeding people under a declared role.	Authority follows the actual role and task, with participant records kept distinct.
Public	Preparing knowledge or an account of food activity for possible wider contribution.	Participation, processing and eventual publication each require their applicable authority.

These examples orient the reader without assigning subjects to a single type. A health question can arise within several Moment Types. A professional cook may explore a Private question about their own experience, or contribute a Public Method after separate review. A shared meal can support several distinct accounts of what happened and why it mattered.

The setting alone does not choose the Moment Type. A public food event may contain Private, Personal and Professional Moments. A Public Moment concerns material deliberately framed for possible wider release; completing it does not publish the material. Likewise, a communal screen does not give one participant access to another person's private experience.

The research should examine whether people understand and can exercise these choices. A useful system must preserve changes of purpose, disagreement and the decision to leave an experience unrecorded. It must also preserve the possibility of asking for help: person-governed inquiry can include another human or an authorized AI agent without transferring authorship of purpose to either.

The following sections examine what might become understandable or achievable through each Moment Type. Their common research object is the relationship among intent, situated effort, reviewed Perspective and later consequence.

6 Private

The Private inquiry begins with a person's relationship to themselves. Someone may want to understand how they experience a working day, recover confidence in preparing food, enjoy eating alone or make sense of a recurring sensation. Their question can begin incompletely. The system should help them articulate it without turning an agent's suggested goal into the person's accepted intention.

Consider an illustrative inquiry: **“What makes it possible for me to have a lunch I find satisfying on days when my schedule changes?”** The relevant circumstances may include when food is available, where it can be stored, whether a break is predictable and what preparation the person can sustain. An optional account of hunger or mood may be meaningful. The inquiry does not need a complete diet history or continuous monitoring to begin.

The person could try a Method, describe what happened and review a Perspective connecting their intention with the conditions of the attempt. Perhaps the main difficulty was access to a break. Perhaps the preparation required more effort than expected, or a small change made the intended meal possible. Each is a candidate explanation to examine, not a conclusion to generate in advance.

A later application can reveal whether any understanding was useful. The person might prepare differently, choose a different meal, ask for a practical accommodation or decide that the proposed change does not suit them. The system should preserve the stated reason, where the person chooses to provide it. A refusal can be evidence about fit; it is not evidence of deficient motivation.

Private inquiry can also lead toward health research. A person may choose to discuss selected observations with a clinician or participate in a study of a defined physiological question. That is a new, explicit relationship with appropriate evidence and responsibilities. The original personal account retains its source and scope.

The proposed research examines whether a person becomes better able to ask a meaningful question, distinguish observation from explanation and act on understanding that fits their circumstances. It also examines whether recording or feedback adds anxiety, unwanted attention to food or unnecessary work. The person's ability to correct, narrow or stop the inquiry is part of its success.

PRIVATE RESEARCH DIRECTION

Examine whether a person can turn a lived experience into a more precise question, assess the available evidence and identify a next action they can attempt.

7 Personal

The Personal inquiry concerns food within trusted relationships. Preparing a meal for someone can involve knowing what they enjoy, remembering an earlier occasion, negotiating different needs or finding a way to care under pressure. The activity may bring people together, but what it means must be learned from the people involved.

A useful inquiry might begin: **“How can we make eating together possible without leaving one person responsible for all the work?”** A household or trusted group can describe the occasion it wants, the conditions each person faces and the contributions each is willing to make. The Method may involve obtaining food, preparing different components, coordinating arrival times or accepting an easier preparation.

The research should preserve separate accounts. One participant may value time together, another may be learning a technique and another may chiefly need something available after work. A shared result can meet these purposes unevenly. The person who prepared the food cannot supply everyone else’s account of belonging, satisfaction or care.

Dunbar’s survey research found associations between social eating and reported wellbeing and social connectedness. It gives reason to investigate shared meals while leaving the quality, meaning and direction of the relationship open in any particular setting. A photograph of people eating together cannot establish a positive relationship. [15]

Personal Moments also allow inquiry into the transmission of knowledge. A person might ask a relative to help express an inherited Method, identify what can be written and demonstrate what requires practice. An adaptation can retain the original author and circumstances while recording what a later cook changed. An AI agent can assist that expression; it cannot claim the experience or speak for a person who has not contributed an account.

The proposed research examines how coordination, skill and mutual understanding change across repeated occasions. Relevant evidence can include separately expressed purposes, actual contributions, timing, adaptations and participant reviews. Researchers should attend to disagreement and uneven burdens, including the work of planning, remembering and cleaning that a finished meal can conceal.

A useful Perspective may help a group change its arrangement for next time. It may also reveal that the participants want different experiences. The outcome remains attributable to them; consensus is a finding to establish, not a default output.

PERSONAL RESEARCH DIRECTION

Examine how food practices support care and coordination within trusted relationships, preserving each person’s account of purpose, contribution and consequence.

8 Professional

The Professional inquiry concerns skilled practice and responsibility to others. A chef, caterer, hospitality team, workplace food service or institutional kitchen must relate the food it prepares to the people it feeds, the conditions of service and the resources available. Professional capability includes timing, judgment, coordination and adaptation as well as executing a preparation.

An illustrative inquiry is: **“Can we adapt this service so that people arriving at different times can eat well within the equipment, staffing and budget we actually have?”** The intended outcome has to be specified with the people responsible for the service and, where appropriate, those receiving it. Culinary quality, accessibility, cost, waiting and staff effort may all matter, with tradeoffs made explicit.

A Method can preserve the source of the preparation, required capabilities, dependencies, timing and the adaptations made during actual service. A failed assumption about equipment or supply becomes evidence for revising the next application. A brand's ingredient or appliance knowledge can inform the Method when its source and applicability are clear. Product claims do not establish what occurred in the kitchen.

Here the spatiotemporal inquiry becomes particularly visible. Preparation may begin elsewhere or on an earlier day. A delivery, a holding location, a service window and a late change affect one another. The research should examine whether a reviewed account helps practitioners understand those dependencies and coordinate a later service under changed conditions.

Professional Perspective must remain accountable to the declared role. A manager may receive a permitted account of service coordination without receiving a worker's Private food or health inquiry. A customer's experience and a practitioner's assessment should retain their different sources. Participation in research should not become an undeclared condition of employment or receiving food.

The proposed study can examine Method adaptation, staff coordination, the experience of those fed and whether improvements survive a different shift, menu or resource constraint. Claims about food safety, nutritional suitability or clinical provision require qualified standards appropriate to that specific service. A general Kitchen Method cannot substitute for them.

This Moment Type brings professional mastery into the thesis. The question is whether human expertise becomes more expressible, applicable and open to correction when AI works within its actual responsibilities and conditions.

PROFESSIONAL RESEARCH DIRECTION

Examine whether AI can support a practitioner's judgment and the conditions of service, with evidence from the people who prepare and receive the food.

9 Public

The Public inquiry concerns food knowledge and experience that people may choose to contribute more widely. Community meals, cultural festivals, markets, demonstrations and collective food provision can bring strangers into a common activity. The research can investigate what makes participation welcoming, useful or meaningful, and how the people involved wish that experience to be represented.

An inquiry might ask: **“What helped people with different circumstances participate in this food gathering, and what should change before we hold it again?”** Relevant circumstances could include timing, cost, language, mobility, available food and the way participation was offered. An organizer’s intention is one part of the account. Participants may describe different experiences of access, welcome or exclusion.

Public location does not establish public data. The proposed Public Moment begins when contributors deliberately frame material for possible wider use under stated terms. An event attendee can eat, observe or leave without becoming a research record. A crowd image does not authorize claims about the people depicted, their health or their sense of belonging.

An appropriate contribution could be a reviewed Method for organizing a meal with limited equipment, an attributed account of a cultural practice or a finding about a barrier the organizers can change. It should carry its source, circumstances, limits and permitted uses. The people contributing the knowledge decide whether to release it after review. Publication is a separate action.

This creates a route from individual experience to collective learning. Another group can apply a shared Method in a different setting and contribute what it learned. Agreement may develop, but successful reuse remains situated. A practice that worked for one event may depend on resources, relationships or expertise absent elsewhere.

The proposed research examines participation, the distribution of work, who was able to benefit and how later organizers use the contributed understanding. Attendance alone cannot establish inclusion, and wider circulation cannot establish the truth of an interpretation. Accounts of difficulty, refusal and adaptation are necessary to understand where the approach travels and where it does not.

Public inquiry also asks who has standing to share a practice. An individual’s account should not be presented as authorization on behalf of a whole community. Attributable contribution and the relevant collective terms give wider learning a basis that popularity cannot provide.

PUBLIC RESEARCH DIRECTION

Examine how food knowledge and collective experience become useful contributions, with attributable accounts and explicit authority for any wider release.

10 Spatiotemporal food streams

Food makes a spatiotemporal relationship recognizable. Tomorrow's meal may connect an intention to care for someone, a Method learned years ago, ingredients available today, preparation in a particular kitchen and the eventual experiences of the people eating. A later reflection can inform another attempt. These connections have different times, places, participants and sources.

We propose the following definition for this field expression:

SPATIOTEMPORAL FOOD STREAM

A person-governed account of how intentions, resources, actions and consequences relate across times, places and people.

The person can enter through a future intention, a present condition or an earlier experience. A future meal can organize preparation today. An available ingredient can suggest possibilities for tomorrow. An earlier difficulty can prompt a question about a Method. None requires a complete household inventory or a comprehensive personal history before useful inquiry begins.

The stream develops through selected, authorized relationships. A planned preparation records what someone intends. An observation records what was encountered. A participant account records what that person expressed. AI may connect these sources and offer an interpretation, keeping the difference between source and proposal visible. Reviewed understanding can then inform another chosen action.

Time needs more precision than a single timestamp. **Occurrence time** locates an activity or observation. **Capture time** records when evidence entered the system. **Intended time** locates a possible future activity. **Expiry** limits how long a source remains available. Before, During and After describe effort in relation to a particular Method application. Morning, Midday and Evening organize the day. These distinctions serve different purposes and must remain separate.

For example, a completed shopping trip may support Before for a meal that has not yet been prepared. The trip's After does not complete the meal. A person may plan for a future Place without claiming present admission to its Utility. A remembered event remains an attributed recollection unless supported by the relevant occurrence evidence.

The proposed scientific value is continuity of inquiry. A person can ask what they intended, what circumstances changed, what they actually did and what deserves attention next time. The sequence can help reveal relationships; it does not establish causation on its own. The research must test whether preserving these distinctions helps people reason more accurately and make useful decisions with a partial view of their lives.

11 Reading a stream through experience

Consider a person who begins on Monday with an intention for Thursday: **“I want us to eat together after work without spending the whole evening preparing.”** This constructed example illustrates the proposed approach; it is not a report of a study or a working installation.

The person chooses a Personal Moment and identifies the people who may participate. One person can arrive late. Another has a food requirement they choose to share for planning. Available preparation time and equipment constrain the Method. The intended Thursday experience gives Monday’s inquiry a direction.

Part of the account	Relationship to the intended meal	What the record can establish
Earlier reviewed Method	Offers a preparation the person may adapt.	Its source, version and reported circumstances; present applicability still needs review.
Monday resource check	Identifies ingredients or equipment relevant to a possible plan.	What was checked, where and when; unobserved supplies remain unknown.
Accepted Thursday plan	Connects preparation, people and a possible service time.	An intention and proposed dependencies, with actual participation still to come.
Wednesday shopping	Supplies a requirement for the selected Method.	A purchase when confirmed; arrival and current availability need their own basis.
Thursday preparation	Applies or adapts the Method in the actual kitchen.	Selected evidence of what occurred, including a meaningful interruption or change.
Participant reviews	Relate the experience to each person’s purpose.	Separate accounts of what mattered and possible considerations for another occasion.

Suppose preparation finished later than expected. The person who cooked explains that a tool was unavailable. Another participant says the late timing suited their arrival, while someone else would prefer to eat earlier next time. A useful Perspective would preserve those accounts and identify the unresolved coordination question. It would not need to turn them into a single judgment that the meal succeeded or failed.

The group may choose an earlier preparation, a different Method or separate serving times for another meal. That later application supplies evidence about whether the revised understanding helped. A weekly review can draw on permitted reviewed findings and their lineage; it cannot silently recover expired raw recordings. The meaningful continuity is the question and what people have authorized to carry forward.

12 Disciplines meeting in one experience

Food allows different forms of understanding to meet in the same lived activity. The Moment Type establishes the purpose and permitted relationships of an inquiry. A discipline contributes questions, methods and standards of evidence. These are separate dimensions: there is no automatic mapping from Private to biology, Personal to psychology or Public to anthropology.

Discipline or practice	A possible food inquiry	Evidence appropriate to the claim
Anthropology and sociology	What does preparing, offering or refusing this food mean within these circumstances?	Participant accounts, situated observation and comparison attentive to relationships, institutions and material conditions.
Biology and physiology	How does a defined food practice relate to a specified bodily outcome?	Suitable measurements, clinical or experimental design where needed, and qualified interpretation.
Psychology	How do people experience hunger, attention, mood, habit or agency in the activity?	Attributed reports, appropriate validated measures and a design that distinguishes association from intervention effects.
Chemistry and food science	How do ingredients, heat, time or another preparation condition affect the result?	Sourced knowledge and controlled measurements suited to the material process under study.
Art and culinary practice	What is expressed through a preparation, and what does skilled judgment contribute?	Attributable practice, sensory accounts, critique and documentation of application and adaptation.
History	How did a food practice arise, travel or change, and whose account is preserved?	Critically interpreted documents, objects, oral accounts and evidence of provenance.

The purpose of bringing these perspectives together is to ask better questions. A participant's account of comfort can be meaningful psychological or cultural evidence without demonstrating a biochemical mechanism. A technically consistent preparation may still fail to express what its maker intended. A nutritional composition record cannot explain why a person shared a dish at a particular occasion.

The DLA should preserve the basis of each claim and route questions to the knowledge or expertise appropriate to them. Participants can correct how their experience is represented. Researchers remain responsible for the methods used to evaluate a scientific claim. Agreement with a proposed Perspective does not make every inference in it true.

This is an interdisciplinary research program with a common lived reference. Different investigators may examine different questions within it, provided the purpose, authorized evidence and resulting claims remain legible to the people whose lives supplied the inquiry.

13 The DLA as an instrument of inquiry

A System of Things (SOT) declares relationships among people and roles, Places, Spaces, Things, utilities and their permitted activity. A Data-Logic-Action Unit specifies the data a Utility may use, the processing it may perform and the outputs or actions it may produce. Together, they make the relationship with AI specific enough to inspect and test. [1]

The Kitchen master is the editable authoring source for one versioned DLA. It is distilled into exactly eight coordinated governing files, listed below. These files jointly specify the unit; the master is not a ninth runtime file. A Method describes a practice, while a Goal-Based Task makes an appropriate part of its application explicit against a person's attributable purpose.

Governing file	Contribution to a testable Kitchen inquiry
manifest.json	Identifies the unit and version, its eight-file composition and required assignment and execution responsibilities.
contract.md	Defines purpose, permitted data and actions, GBT applicability, authority and lifecycle boundaries.
knowledge.md	Supplies attributable culinary knowledge, its applicability to selected Methods and tasks, and its limits.
matrix.md	Defines goal and task records, evidence, actual and planned context, resource meanings and uncertainty.
methods.md	Authors reusable Methods and GBT definitions, relating goals to selected steps, expected results and capture purposes.
flowmap.md	Specifies task progression, independent Method stages, Journal return, review, correction and source expiry.
rubric.md	Separates task result, goal attainment, Method evidence and agent support, with explicit unknown findings.
value.md	Relates attributable effort to contribution rules, preventing duplicate recognition and automatic awards.

The scientific value of this structure is traceability. Investigators can relate the person's goal, the selected Method and GBT, actual effort, available evidence and returned proposal. They can then examine whether a difficulty arose from the Method, missing context, interpretation, authority or material circumstances. Each application preserves its goal revision, Method version and DLA version.

The current Kitchen unit, version 0.4.0, is authored for review. This reconciliation specifies GBT definitions, application records, evidence links and separate assessment and contribution rules within the existing eight files. Local checks establish selected authoring and calculation properties. Admission, permissions, task dispatch, Journal return, review, correction and source expiry still require a demonstrated live connection.

A DLA Method is an operational practice, not a complete research protocol. An exploratory study may use a clearly identified prototype or human-facilitated process, reporting which responsibilities were performed by people and which were enforced by software. Authored intent, prototype behavior and deployed capability are different forms of evidence.

13.1 Goal-Based Tasks in Method application

A Goal-Based Task is bounded purposeful effort within the relationship Goal → Method → Task. It makes clear what the person is trying to make possible, which Method steps are relevant, what a useful result would be and which evidence could support that result. The reusable definition belongs to the DLA. Its application belongs to the person's particular goal, Method version, installation, Moment Type and circumstances.

For an applicable task, the process records an attributable goal and selects relevant Method steps; states the intended result, evidence and review criteria; records actual effort and adaptations; reviews the resulting claims; and returns permitted understanding to the person's next choice. Browsing a Method or making an unbound Journal note need not activate a GBT. A person may also explain the purpose of spontaneous or earlier practice. That later account must not invent prior acceptance or a sequence of events.

The rubric and value rules have distinct jobs. The rubric asks what the evidence supports about the task result, the larger goal, the Method and the agent's support. Value rules ask whether actual attributed effort qualifies as a contribution under the applicable terms. Closure is a work status. It does not prove accomplishment, goal attainment or eligibility, and a useful contribution may arise during a partial or unsuccessful meal application. Any proposed award remains separate from recording or reviewing the effort.

For example, a person intends to prepare a dinner whose selected Method requires six eggs. A relevant, person-confirmed check establishes four available eggs. The resource-check task can have a supported result while the dinner goal remains unresolved. Under the appropriate current authority, one linked shopping request can reflect the shortfall of two. The observation may qualify as a contribution even if dinner is later cancelled. Referencing it from a second task does not create a second contribution.

This provides an applied link to the thesis: the proposed system can be examined in relation to intended value, situated practice and meaningful consequences. Task counts alone cannot establish increased capability or a useful relationship with AI. The field protocol must specify which changes matter to the participant, how they will be observed and which comparison could attribute a difference to the support received.

14 What the Kitchen unit can ask

The current DLA contains four authored Perspective inquiries. They describe questions the system can be developed to support. They can operate within the chosen Moment Type when purpose and authority permit; their number does not make them equivalents of the four Moment Types.

Authored inquiry	Question it makes operational
MEAL_FIT	Could the person realize the intended meal within their circumstances, and what might help another attempt?
METHOD_LEARNING	What did an actual application or adaptation reveal that could inform the Method's next use?
SHARED_EXPERIENCE	What did preparing or sharing food mean to the participants who described their experience?
RESOURCE_AND_TIME_FIT	How did ingredients, equipment, place and timing help or constrain the intended activity?

These inquiries provide an initial means of testing the thesis. They preserve human intent, applied practice, participant accounts and relevant source relations. They leave the findings open. A comparison requires more than one actual application, but the unit's minimum of two applications is an evidence condition for a comparison, not a scientifically adequate sample size for an efficacy claim.

The seven authored Methods cover planning and making a meal, shopping, receiving and storing, using stored ingredients, writing or adapting a Method, checking relevant available ingredients and recording available equipment. The reconciliation links their existing steps to nine reusable GBT definitions; a person applies only those relevant to the purpose. These give investigators activities to follow across time and place. Recipe-specific directions still need a concrete, attributable Method with relevant ingredients, equipment and conditions.

A participant may begin with a broad question about wellbeing or relationships. The first test can make one part precise: whether a meal can be prepared at the intended time, whether an adaptation is useful later or how participants describe a shared experience. A clinical question, a collective access intervention or a historical study may require additional measures and a reviewed extension of scope. The eight files provide a way to declare that extension; they do not already contain every disciplinary protocol.

The unit's rubric evaluates **agent support** through intent fit, Method support, Perspective grounding, capture proportionality and response to correction. It does not score the person's worth or dietary obedience. A failed preparation can still provide valuable evidence. Where a later application has not occurred, claims about improvement through correction remain unresolved.

This gives the proposed research a concrete beginning while preserving its larger ambition: determine what can be learned through lived food practice and whether the returned understanding expands what people can make possible.

15 Beginning with lived food practices

The first research stage should investigate how people already obtain, prepare, experience and share food. Its purpose is to identify consequential questions and constraints before choosing an intervention outcome. We propose a comparative, participant-directed field study, informed by the contextual attention demonstrated in food ethnography. [6, 7]

Recruitment should seek variation in material circumstances, practical experience, care responsibilities, working patterns, food traditions and access to facilities. The four Moment Types provide possible entries. Participants choose the type appropriate to the inquiry; researchers record whose experiences and settings remain absent. Initial site and participant numbers should be justified by the diversity and depth of inquiry, with recruitment and stopping decisions documented before and during fieldwork.

The starting conversation asks what the person wants food to make possible and what currently helps or hinders that purpose. Researchers then follow selected activities the participant agrees are relevant. These may include an accompanied shopping visit, a preparation, a service, a shared meal or a discussion of a previous attempt. Each observation has an explicit scope. Continuous capture is not a prerequisite.

The unit of analysis is an inquiry followed through one or more Method applications. Where appropriate, GBT records make the intended result, selected steps, actual effort and reviewed findings explicit within that inquiry. Multiple tasks or records from one person or episode do not become independent study participants or replications. Researchers distinguish individual accounts, shared activities and institutional conditions, preserving changes of purpose and the versions that governed earlier work.

Analysis should combine close case accounts with comparison across cases. Researchers look for recurring relationships and cases that challenge them: a suggestion that helped under one schedule and failed under another, or a shared preparation that reduced one person's burden while increasing another's. Participant review can correct factual representation and offer another interpretation. Disagreement with the researcher remains visible.

The stage should produce a grounded account of which boundaries matter, candidate Methods or adaptations worth testing, and an evidence plan proportionate to each question. It should also identify activities where the proposed system adds no useful role. Qualified researchers and participants should review the interpretation before an efficacy trial is selected.

This stage can begin before full runtime integration, using explicitly described research procedures. It cannot be presented as evidence of software capability that has not been implemented. Its contribution is to establish the lived question and conditions an eventual system must answer to.

Human-participant work requires appropriate independent ethics review and consent. Protocols must address age-specific participation, clinical responsibilities where applicable, and settings where employment or access to food could make refusal difficult.

16 Testing whether possibilities change

The next stage should test a specific proposition emerging from fieldwork: **for a defined food purpose and setting, does the proposed relationship improve understanding or make a useful action more achievable?** Each study should name the boundary being investigated, the proposed mechanism of change and the evidence that would count against it.

One candidate mechanism is that preserving intent and circumstances improves the relevance of a returned Perspective, which helps the person choose an adaptation that remains useful in a later application. Each link can fail. Evidence may be incomplete, the interpretation may be wrong, the person may already know what to do or the relevant opportunity may remain materially unavailable.

Proposed comparison	What participants receive	Question the comparison can address
A Usual practice	The specified usual practice and agreed access to the relevant Method and resources.	Provides a reference for the overall added process where a third condition is feasible.
B Structured inquiry	Framed intent, selected evidence and participant-led review under the declared DLA rules, without AI interpretation.	Compared with A, tests the added structure and reflection.
C Added AI Perspective	The same B process, with an attributed AI proposal that the person can review, correct or reject.	Compared with B, tests the incremental contribution of AI interpretation.

This is a proposed design family, not a fixed trial for every Moment Type. A focused two-condition study may compare B and C. Human support, knowledge access and material assistance should be comparable where they are not the intervention. Researchers must record differences in time, attention and assistance so benefits are not automatically attributed to AI.

Where feasible, assignment should be randomized at the level where the intervention operates. Household or kitchen coordination may require group assignment. Repeated learning can carry forward, so a crossover design that assumes a person returns to their earlier knowledge state may be inappropriate. A nonrandomized study should specify its comparison and limit causal claims accordingly.

A resource intervention requires its own analysis. If participants receive equipment, ingredients or a changed service schedule, measure that contribution separately or include it explicitly in the design. Sample size and duration should follow the chosen outcome, meaningful effect, expected variation, dependence among observations and attrition. Two meal applications cannot establish population efficacy, and a short Kitchen pilot cannot establish longevity.

The study should also include a later application with changed circumstances where appropriate. This can test whether understanding travels beyond the original attempt, with the level of ongoing assistance declared. A useful result may be a narrower claim about one Method or setting.

17 What would count as evidence

Each study needs a primary outcome tied to the participant's purpose and the research question. Before the intervention, specify what change would be meaningful and how it would be observed. Avoid a universal score that combines nourishment, pleasure, skill, belonging and efficiency into a judgment about the person.

Proposed domain	Evidence of a useful change	Important limit or contrary finding
Practical possibility	A previously obstructed, participant-valued action becomes feasible under documented conditions.	The action depends on unrecorded subsidy, extra labor or support unavailable outside the study.
Understanding	The person can explain relevant circumstances, uncertainty and the basis for a possible adaptation.	Confidence increases while explanations become less accurate or more dependent on the agent.
Method capability	A later application shows a relevant skill or adaptation under specified assistance.	Repetition of instructions is reported as independent capability without an appropriate assessment.
Shared experience	Separate participant accounts identify a useful change in coordination, care or participation.	An organizer's satisfaction hides disagreement, exclusion or a shift of burden to others.
Agency and burden	People understand and exercise review, correction, sharing and stopping choices at an acceptable cost.	Recording displaces activity, increases distress or makes refusal practically difficult.

These are outcome domains for protocol development. Measures must suit the claim. A meal occurring at the chosen time can be observed. Belonging requires an account from the person whose experience is being described. A physiological endpoint requires a valid measurement and appropriate study design. Researchers should use established measures where applicable and explain the limits of measures developed for this program.

Record baseline circumstances, the intervention actually received, changes of intent, assistance and missing evidence. An unrecorded meal is unknown, not a failed meal. GBT review separates task results, goal attainment, Method evidence, agent support and contribution eligibility. Closing a task establishes none of these findings by itself. Where the primary goal changes, distinguish analysis of the original research outcome from a new participant-directed inquiry. Report uncertainty, variation between settings and the denominator behind any percentage.

Independent review should examine evidence and claims where feasible, with assessors unaware of condition when the task permits. The agent's self-assessment, the participant's account and a researcher's judgment must remain distinguishable. Report null findings, corrections, withdrawal and adverse effects alongside useful changes.

Before field use, set specific thresholds for pausing capture or an intervention when authority fails, distress appears, food guidance creates a material problem or burden exceeds the agreed limit. The protocol should name who responds and how. These provisions protect the possibility of learning from failure without requiring participants to continue an unsuitable inquiry.

18 Authority and continuity

Physical-first intelligence depends on a governable relationship among lived evidence, interpretation and consequence. **Vivo** identifies lived data with presence and attributable context. **Vitro** identifies digital data produced by utilities or agent processing. A Perspective may help make experience intelligible while preserving which claims came from observations, participant accounts, external knowledge or interpretation. Review does not convert an inference into a directly observed event. [1, 2]

Spatial admission establishes the eligible context of a Utility. AI performs bounded processing for the authorized purpose. An authorized Block can preserve proof of Data Well ownership and owner-approved lifecycle transitions; it is not the Data Well and does not prove the truth of its contents. A future reference in a plan grants no present access elsewhere. These relationships make the system's authority part of the scientific object being tested.

The Kitchen canon gives raw evidence a maximum 72-hour lifecycle from its original capture. Copying, transcription, a new job or an unfinished task or review does not restart that clock. Accepted goals and task status have their own governed work lifecycle; retained experience findings require separately authorized reviewed Perspective and permitted lineage. Daily and short-period work may use still-eligible source; weekly and 28-day review must use permitted reviewed material. A 28-day period and a calendar month are distinct.

A research protocol must design its evidence process around those limits. Raw interview recordings, images and transcripts cannot become an undeclared permanent archive. Researchers should specify timely review, the concise findings and measurements eligible for retention, who can review them and the resulting limits on later verification. A retained finding must not reconstruct the expired source under another name. Where the lifecycle cannot support a proposed claim, narrow the claim or redesign the study.

Participant review, permission to process, permission to retain and permission to share are separate decisions. A participant may authorize a useful account without authorizing its contribution to a collective. A Public Moment still needs a separate release action. Research access must not be inherited by a brand, employer or institution because it supplied a tool, meal or study setting.

Corrections should propagate to dependent findings and temporary views. For example, a purchase does not establish current stock, and selecting a recipe does not establish ingredient use. Resource accounts retain their dated basis and uncertainty. The same discipline applies to meaning: one participant's revised account should not leave an older interpretation circulating as their current view.

The research should test these boundaries in use, including whether people can understand and exercise them. Written commitments are a specification; demonstrated behavior is evidence.

19 Applying the System of Things to AI strategy

For an individual or organization, the strategic starting point is a food purpose worth serving. The System of Things makes the relevant people, roles, Places, Spaces, Things and capabilities explicit. The chosen Moment Type then establishes how the inquiry may proceed. An AI strategy can be evaluated against that lived purpose and its consequences.

An individual might begin with a personally meaningful preparation or question. A brand might contribute attributable ingredient knowledge or an appliance Method. A company might examine coordination across a food service. An institution might investigate access, learning or a defined health question. Each can participate across more than one Moment Type when the actual purpose and authority support it.

Possible contributor	Concrete contribution to a study
Individuals and households	A meaningful question, practical knowledge, chosen participation and reviews of how experience is represented.
Cooks and other practitioners	Attributable Methods, skilled observation, adaptations and assessment of practical applicability.
Brands and companies	Product or equipment knowledge, implementation capability, a relevant setting or declared research support.
Institutions and researchers	Disciplinary expertise, suitable methods, accountable field settings and independent evaluation.
Community organizations and collectives	Knowledge of local circumstances, participation design and authority over appropriate collective contributions.

The proposal should identify what changes because AI participates. Is it a comparison of Methods, an explanation of uncertainty, coordination of dependencies or a returned interpretation of selected evidence? The DLA records that responsibility and its limits. Buying a capable model does not answer which purpose it should serve or which data it should receive.

Material arrangements belong in the strategy. A study must identify the cost of equipment, ingredients, staff time, participation and ongoing support. It should explain who could sustain a useful practice after the initial test. If a business benefit is proposed, evaluate it separately from the benefit to the person and disclose circumstances where the two may conflict.

Contributions need source, authorship and permitted-use terms. Sponsor interests and supplied product knowledge must be visible. The current DLA's proposed contribution and commercial mechanisms are not operating payment promises. A positive review, a completed meal or wider sharing should not be required to recognize a person's qualifying effort.

This approach gives collaborators a concrete AI strategy question: what relationship with people does the system establish, what useful possibility is it intended to support and what evidence would justify continuing it?

20 Conclusion

Food places the thesis of physical-first intelligence within a relationship that has helped shape human development and continues to organize everyday life. Through food, bodily needs meet acquired knowledge, material conditions, cultural meaning and responsibility for others. Its value as a research setting lies in the possibility of studying those relationships together, while retaining the distinct questions and standards of the disciplines that examine them.

This paper proposes that a useful relationship with AI can begin in a person's lived purpose and remain accountable to what becomes possible in that life. Private, Personal, Professional and Public are four Moment Types that allow the user to enter the thesis. They support inquiry into bodily experience, care within relationships, skilled service and shared knowledge, without presuming one meaning or one permitted audience for an experience.

Spatiotemporal food streams make that proposition investigable across time, place and circumstance. They connect an intended experience with available resources, actual effort and reviewed consequences. The Kitchen master and its eight governing files specify this relationship through Methods, appropriate Goal-Based Tasks, evidence and review. The resulting record allows investigators to examine whether support helped the person understand, choose or act, while distinguishing task progress from meaningful change. Its scientific value depends on demonstrating these relationships in operation and making their limits, corrections and effects open to scrutiny.

The literature reviewed here establishes a substantive basis for this inquiry. It does not establish the effectiveness of the proposed system. That requires field research sensitive to differing circumstances, comparisons that distinguish AI's contribution from other forms of support, and evidence of consequences people consider meaningful. A useful finding may show that a person understands an experience more clearly, acquires a transferable skill or can coordinate care that was previously difficult. It may also show that progress depends on resources, working conditions or institutional decisions beyond that person's control.

Food gives this research a demanding measure of progress: whether a person can understand, choose or make possible something that was previously beyond their reach. Any claimed advance must be demonstrable in their circumstances, with authority over the account of their experience and its next use preserved. The Kitchen inquiry brings AI's practical application in society to this question of human development. Its contribution will be judged by what people become able to understand and do in the lives they lead and share with others.

Canon basis and research status

This paper develops the Kitchen field expression of the Physical Intelligence Lab's thesis. It follows the foundational position in Paper 00 and the research orientation established in the learning field paper, Paper 01. The opening deliberately carries their account of physical presence, eligible Utility access and human purpose into the food inquiry. [1, 2]

Its Kitchen basis is KITSUNE_KITCHEN_SYSTEM_CANON_R1.md, incorporating the 10 September 2026 GBT reconciliation; KITSUNE_KITCHEN_MACRO_DLA_R2.md, unit KITSUNE_KITCHEN_DLA version 0.4.0; and the coordinated manifest, contract, knowledge, matrix, methods, flowmap, rubric and value files distilled from that master. The master authors one unit; exactly eight governing files express it.

The spatiotemporal interpretation follows **Kitsune Spatiotemporal Intent**, the 8 September 2026 R1 proposed canon and thesis addendum. Its principle allows entry from a future intention, a present condition or a prior consequence while preserving actual context, source identity and the independent relationships of time, Method stage and retention. This paper's definition of a spatiotemporal food stream is a field formulation of that principle.

Implementation status follows KITSUNE_KITCHEN_DLA_REVIEW_R2.md, updated on 10 September 2026. This paper and the source package have been reconciled together to specify GBTs and clarify the relationship among purpose, Methods, evidence, assessment and contribution. The review distinguishes addressed authoring inconsistencies from remaining definition and integration work. The research program still requires a versioned, demonstrated implementation for any claim about operating DLA behavior.

Three kinds of claim are kept distinct. Established scholarship supplies reasons to study food as bodily, social, historical and material practice. The Lab supplies a proposed relationship among intent, evidence, processing, Perspective and action. The field program supplies designs through which that proposal can be investigated. Evidence for the importance of food does not itself validate Kitsune.

The cited literature is a selected interdisciplinary foundation, not a systematic review or a claim of exhaustive coverage. It includes ethnographic and sociological research, archaeological interpretation, observational health research and specific intervention trials. Their different methods and scopes are retained. Detailed field protocols will need research appropriate to their selected populations, settings and endpoints.

Document status: Version 1.4, September 2026. Draft for scientific and field-partner review. This revision clarifies the abstract and applied DLA structure, including Goal-Based Tasks. Proposed studies, examples, entry questions and participation terms remain offered for development; no participant results are reported.

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