

DISPUTATION ON THE POWER AND EFFICACY OF CARTOGRAPHIC EXPERTISE

74 questions for academic cartographers and GIS professionals
in the age of natural-language mapping

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CLASSROOM DISCUSSION HANDOUT / GIS & SOCIETY / CARTOGRAPHIC ETHICS

READ	QUESTION	DISPUTE	REVISE
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SECTION 01 / QUESTIONS 01-04

I. WHAT IS CARTOGRAPHY FOR?

- 01 Is cartography defined primarily by the tools and procedures through which maps are produced, or by the geographic understanding, communication, and public usefulness that maps make possible?
- 02 If a person can express a defensible cartographic intention in natural language, direct an artificial-intelligence system to execute it, and critically revise the result, by what principle is that person excluded from the practice of cartography?
- 03 Does a map become less cartographic when its creator directs rather than manually performs its construction, or have cartographers always delegated portions of their work to instruments, technicians, software, templates, and machines?
- 04 Whom does cartography ultimately exist to serve: those who possess its specialized methods, or the people and communities who need to understand spatial relationships?

SECTION 02 / QUESTIONS 05-16

II. BY WHAT AUTHORITY IS MAPMAKING RESTRICTED?

- 05 How much of the traditional difficulty of GIS arises from the complexity of geography itself, and how much arises from the historically awkward ways computers, databases, and software have required humans to describe geographic intentions?
- 06 If a user can accurately request that points be grouped by proximity, that an area be summarized by neighborhood, or that a route avoid hazards, why must that user first know the sanctioned technical names of clustering, spatial aggregation, or network analysis?
- 07 Does memorizing the location of a tool within a software interface demonstrate geographic reasoning, or only familiarity with the temporary arrangement of one vendor's menus?
- 08 At what point does technical terminology clarify geographic thought, and at what point does it function as the Latin of a professional guild - useful to insiders, the initiated, but intimidating to outsiders, and unnecessarily protective of institutional authority?
- 09 If natural language can translate a person's geographic intention into a reproducible analytical workflow, should the quality of the intention and result matter more than the user's knowledge of the intermediate commands?

- 10 If the public has financed the collection of a dataset, why is practical access to its meaning so often contingent on knowledge of coding, database structures, file formats, projections, APIs, and institutional portals?
- 11 Can data truly be called open when the legal right to download it exists but the practical ability to find, interpret, clean, join, analyze, and map it remains restricted to a technically initiated minority?
- 12 Does a university credential certify cartographic judgment, or does it certify that a person successfully navigated a particular rite-of-passage curriculum, set of technologies, and professional culture at a particular moment in time?
- 13 Why have some of us often treated the ability to execute a complex procedure as equivalent to understanding when, why, and whether that procedure should be used?
- 14 If natural-language GIS can provide explanations, alternatives, warnings, and critiques while performing an analysis or creating a visualization, might some novices receive more methodological guidance than users who silently click familiar tools without reconsidering their assumptions?
- 15 By what authority may a profession claim exclusive ownership over methods that increasingly can be explained, demonstrated, and operationalized in the ordinary languages of the people who need them?
- 16 If cartographic expertise is genuinely valuable, should it require barriers to remain visible, or should its value become clearer when its principles are made broadly understandable and usable?

SECTION 03 / QUESTIONS
17-31

III. WHICH PROFESSIONAL ASSURANCES ARE ACTUALLY TRUE?

- 17 Is a map made by a human expert inherently more accurate, ethical, or communicatively effective than a map made through human direction of an LLM, or should both be judged by evidence rather than genealogy?
- 18 When a human-made map contains projection errors, misleading classifications, inaccessible colors, cluttered labels, or unsupported claims, do we condemn human cartography itself, or do we critique the particular map and improve the process?
- 19 Is “AI slop” a meaningful category of production, or is slop simply low-quality output that can be produced by people, institutions, templates, automated systems, and conference committees with equal enthusiasm?
- 20 If critics believe AI-assisted maps are visibly and consistently inferior, why not test that belief through blinded evaluations using explicit criteria for accuracy, clarity, accessibility, ethics, usability, and fitness for purpose?
- 21 Why is manual execution so often treated as evidence of creativity when creativity has always also involved intention, selection, combination, framing, criticism, revision, and the willingness to discard an attractive but unsuccessful idea?
- 22 Did cartographers cease to be authors when they stopped engraving plates, drawing lettering by hand, operating darkrooms, programming every function from scratch, or hosting every tile on their own servers?

- 23 If using a graphical interface did not invalidate maps because the cartographer did not write the underlying code, why should using a natural-language interface invalidate maps because the cartographer did not manipulate the graphical interface?
- 24 Why was automation celebrated when it replaced repetitive labor, accelerated computation, positioned labels, generalized features, generated tiles, or applied symbols, yet described as dehumanizing when it began translating human language into complete workflows?
- 25 If an LLM can explain its proposed method, generate an auditable script, preserve the prompt history, and revise its approach under critique, in what sense is this process necessarily less rigorous than a sequence of undocumented clicks?
- 26 Are prompts intrinsically vague, or do they merely expose how vague human intentions often were before software forced them into rigid parameters without requiring the user to articulate the larger purpose?
- 27 Is code automatically precise when it faithfully executes an ill-conceived method, and is natural language automatically imprecise when it clearly states purpose, assumptions, constraints, tests, and expected outputs?
- 28 Do professionals object to LLM hallucination with equal force when human analysts make unsupported assumptions, copy inherited workflows, misread metadata, select convenient datasets, or confidently repeat methods they no longer fully understand?
- 29 Why are the probabilistic weaknesses of LLMs treated as disqualifying while the cognitive biases, fatigue, incentives, memory failures, and social conformity of human experts are treated as manageable conditions of professional practice?
- 30 If all mapmaking combines judgment with imperfect tools, should we not compare complete workflows - including verification and critique - rather than comparing an idealized expert human with an unsupervised machine?
- 31 If natural-language systems make the cartographer's instructions, revisions, and compromises more visible than many traditional workflows do, might prompt cartography sometimes increase accountability rather than diminish it?

SECTION 04 / QUESTIONS
32-44

IV. WHO HAS PAID FOR THE GATES?

- 32 How many local governments, schools, newsrooms, nonprofit organizations, tribal communities, and neighborhood groups have gone without needed spatial analysis because professional mapping services were unaffordable, unavailable, or impenetrable?
- 33 When communities must hire outsiders to map their own lived experience, who controls the framing, categories, omissions, timetable, and final interpretation?
- 34 If natural-language GIS allows subject-matter experts to work directly with spatial data, should cartographers welcome the resulting collaboration, or fear the loss of their role as compulsory translators?
- 35 Can a profession claim to support participatory mapping while treating independently produced, AI-assisted maps from nonprofessionals as presumptively illegitimate?
- 36 When a small organization, such as a municipality, pays repeatedly for consultants to transform public records into routine maps, is it purchasing essential geographic judgment, or renting access to procedures that could increasingly be directed in ordinary language?

- 37 If a journalist can use an LLM to find public data, document its limitations, analyze geographic patterns, and build an interactive map within a deadline, should the work be judged by its evidence or dismissed because a specialized production team was not required?
- 38 If a teacher can help students investigate local environmental inequality without first securing expensive software and a semester of technical prerequisites, what educational value would be protected by preventing that exercise?
- 39 When a resident can ask where pedestrian injuries cluster, which areas lack shade, or how flood exposure overlaps with housing vulnerability, is the responsible response to teach critical use of the tools or to insist that such questions remain professionally mediated?
- 40 Who benefits when the public is told that spatial analysis is too dangerous, complex, or sophisticated to attempt without experts, while the same public is continuously subjected to maps made by governments, corporations, campaigns, and media organizations?
- 41 If access to geographic analysis expands more quickly than formal education can adapt, should the academy construct bridges, standards, and public instruction, or stand at the old gate explaining why the bridge should not exist?
- 42 How many talented potential cartographers were lost because they disliked coding, could not afford tuition, lacked access to software, were excluded by professional culture, or were told that their way of thinking did not resemble the discipline's preferred technical identity?
- 43 If natural language permits writers, artists, historians, planners, activists, scientists, and residents to contribute directly to mapmaking, might cartography become intellectually richer precisely because fewer people must first be remade in the image of the traditional trained cartographer or GIS professional?
- 44 When the burdens of exclusion are borne by those who need maps and the benefits of exclusion accrue to those authorized to make them, can gatekeeping still be described entirely as quality control?

SECTION 05 / QUESTIONS
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V. WHAT IS THE TRUE TREASURE OF CARTOGRAPHY?

- 45 Is the true treasure of cartography found in proprietary and open-source software, specialized vocabulary, professional scarcity, publication prestige, and mastery of procedures - or in the ability to help people understand spatial relationships?
- 46 Are projections, classifications, visual variables, uncertainty, generalization, scale, hierarchy, and geographic ethics valuable because experts possess them, or because these ideas improve maps when anyone can apply them?
- 47 If a cartographic principle can be translated into clear language, reusable prompts, design schemas, evaluative rubrics, and accessible examples, does its wider use diminish the principle or fulfill its purpose?
- 48 Should knowledge developed in publicly funded universities remain dependent on tuition, journal access, conference travel, professional networks, government and corporate grants, and years of tacit apprenticeship before it can influence ordinary mapmaking?
- 49 If the profession's accumulated wisdom can be encoded into open knowledge stores that help LLMs recommend better projections, safer privacy practices, clearer legends, and more honest uncertainty, why would cartographers resist such translation?

- 50 Does externalizing tacit expertise into prompts and schemas cheapen that expertise, or reveal how much of its authority previously depended on remaining difficult to articulate and transfer?
- 51 If a novice can retrieve the relevant cartographic knowledge at the moment of decision, is the novice pretending to be an expert, or using a reference system in the same way experts have always used books, colleagues, templates, and precedents?
- 52 When execution becomes easier, does the enduring work of cartography not become more visible - i.e., defining map intent, critiquing dataset validity, anticipating user interpretation, testing alternatives, openly disclosing uncertainty, and accepting responsibility for the final product?
- 53 If experts no longer receive economic value merely for remembering commands and performing routine procedures, might their more meaningful value lie in building better standards, knowledge systems, critiques, and public institutions?
- 54 If natural-language GIS separates cartographic reasoning from the machinery once required to execute it, should the discipline defend the reasoning or the machinery?
- 55 Is the democratization of mapmaking a threat to cartography, or a threat only to arrangements that made cartographic participation unnecessarily scarce?

SECTION 06 / QUESTIONS
56-66

VI. WHAT DO THE GUARDIANS OWE THE PUBLIC?

- 56 What obligations do universities have when technologies begin performing the very tasks around which degrees, courses, laboratories, and professional identities have been organized?
- 57 Should GIS and cartography programs teach students to compete with LLMs at routine execution, or to direct, evaluate, audit, improve, and govern systems capable of performing that execution?
- 58 Should professional organizations establish transparent standards for AI-assisted cartography, or is it easier to preserve moral authority by condemning practices they have not attempted to evaluate systematically?
- 59 If journals and conferences claim to advance cartographic knowledge, how much space and funding should be devoted to reproducing familiar techniques under new terminology, and how much to genuinely risky ideas that may unsettle the profession itself?
- 60 If an institution celebrates innovation only when innovation strengthens its existing structure, is it cultivating discovery or managing reputational change?
- 61 Why are ethical principles such as sustainability, accessibility, inclusion, transparency, and public participation so often praised in declarations but treated as negotiable when democratizing technologies disrupt professional status?
- 62 If environmental cost is invoked to reject LLM-assisted work, will the same lifecycle accounting be applied to global conferences, cloud GIS, satellite infrastructures, institutional computing, large-scale tile services, and the perpetual replacement of hardware?

- 63 If copyright, provenance, bias, privacy, and labor displacement are genuine concerns - and surely they are - why are they not being answered with auditable standards, public-interest infrastructure, disclosure rules, and education rather than generalized contempt toward LLMs and AI?
- 64 Will universities and professional societies help build open cartographic knowledge systems for the public, or leave that work to corporations and later lament that corporate systems encode corporate priorities?
- 65 If natural-language GIS risks replacing one guild with a smaller group of AI-platform owners, is retreat from the technology responsible, or does responsibility require active participation in shaping alternatives?
- 66 What does a conference devoted to automated cartography (i.e., AutoCart) mean by automation if it welcomes machines that accelerate cartographers but distrusts machines that empower noncartographers?

SECTION 07 / QUESTIONS
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VII. THE SHREWD QUESTIONS OF THE CARTOGRAPHIC LAITY

- 67 If AI-assisted maps are obviously inferior, why are gatekeeping, ridicule, and declarations of illegitimacy needed when fair comparison should be sufficient to expose their weakness?
- 68 If automated cartography was sincerely desired, why is one of the most powerful forms yet developed treated less as fulfillment than as trespass?
- 69 If ethical risk grows as mapmaking becomes accessible, why is the solution exclusion rather than widespread education in provenance, uncertainty, privacy, rhetoric, and verification?
- 70 If academic and professional institutions refuse to guide this transition constructively, by what authority will they later condemn the standards, platforms, and practices that emerge without them?

SECTION 08 / QUESTIONS
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VIII. NO FALSE PEACE

- 71 Can the discipline preserve its present hierarchies merely by adding LLMs to existing software while refusing the deeper consequence that natural language may become the primary interface to geographic work?
- 72 Will cartographers describe the coming transition as a temporary fad until the moment its workflows become ordinary, its old barriers appear absurd, and the opportunity to shape it has passed?
- 73 May experts continue to contribute, teach, criticize, design, and lead - while relinquishing the assumption that others must first receive their permission to make maps?
- 74 If defending the public's right to investigate, analyze, and represent geography through natural language is called heresy, should we not ask whether the alleged heresy is against cartography itself, or only against the guild that temporarily claimed authority over it?