

Mapping the Unsaid: Visualizing Queer-ly & Scholar-ly Becoming in the Doctoral Milestone

Mr. Animesh Paul, University of Georgia

Animesh was born in Tripura, India, and raised in a liberal modern "brown" military upbringing. He prefers the pronouns "He/They" and considers himself a creative, sanguine, and outgoing individual. He graduated with a bachelor's degree in Technology focusing on Electronics and Electrical Engineering from KIIT University. He is now a part of the Engineering Education Transformation Institute as a Ph.D. student under the advisement of Dr. Racheida Lewis. His research is in Engineering Education, focusing on equity, inclusion in the classroom, and easing student transition to the workforce catering to STEM graduates.

MAPPING THE UNSAID: VISUALIZING QUEER-LY & SCHOLAR-LY BECOMING IN THE DOCTORAL MILESTONE

ABSTARCT

The purpose of this WIP research paper is to explore the non-linear, affective, and identity-laden dimensions of the doctoral milestone experience for a queer, first-generation, international student. This work challenges the normalized violence embedded in academic milestones, enacted through expectations of objectivity, productivity, and conformity that often silence emotional labor, grief, and cultural displacement. Guided by Deleuze and Guattari's Deleuze & Guattari (1987) concept of the rhizome, this ongoing autoethnography reframes the doctoral milestone not as a discrete evaluative checkpoint but as a dynamic, entangled process of becoming. Drawing on personal journals, visual collages, and peer dialogues, and analyzed through rhizomatic mapping, this study traces how ruptures, moments of disorientation, loss, and resistance, generate new connections between identity, belonging, and intellectual growth.

Preliminary findings are presented in a visual rhizomatic map, a collage-based representation that layers text, imagery, and affect to illustrate the entanglement of learning, grief, institutional navigation, and identity formation. This visual form serves not as an illustration but as an analytic product, an embodied articulation of how marginalized scholars navigate and reimagine academic spaces structured by ableist and cis-heteropatriarchal norms. Early reflections suggest that grief operates as both rupture and catalyst for scholarly transformation, unsettling conventional narratives of merit and success. By surfacing these embodied tensions, this work seeks to humanize the doctoral process and interrogate the epistemic violence inherent in traditional academic rituals. Future stages of this research will extend this analysis through continued journaling and collaborative interpretation, exploring how grief-informed and queer methodologies can foster institutional compassion and reimagine what counts as rigor in engineering education research.

Keywords: autoethnography, rhizome, grief, doctoral education, queer methodology, visual methods

INTRODUCTION

Comprehensive examinations have long operated as pivotal milestones in doctoral education, commonly marking the transition from advanced coursework to independent dissertation research. In North American doctoral programs, comprehensive exams emerged alongside expanding graduate enrollments and institutional desires to standardize evaluation of doctoral readiness (Estrem & Lucas, 2003; Weir et al., 2017). Although the structure and expectations of comprehensive exams varied across disciplines and institutions, this milestone was typically positioned as a checkpoint where students demonstrated disciplinary command, synthesized literatures, and articulated defensible scholarly arguments before proceeding to dissertation work

(Estrem & Lucas, 2003; Weir et al., 2017). However, doctoral milestones rarely unfold as clean, linear sequences. Research on doctoral socialization and the transition to independent research suggested that milestones also functioned as identity-shaping moments, where students navigated expectations about preparedness, productivity, and performance while learning what it meant to become a researcher (Gardner, 2008; Lovitts, 2005).

These dynamics were especially salient within Engineering Education Research (EER), an interdisciplinary field shaped by ongoing debates about legitimacy, rigor, and knowledge of production. EER developed from scattered inquiries into a recognized scholarly community with its own representational practices, publication venues, and methodological tensions (Borrego et al., 2008; Klassen & Case, 2022). As EER doctoral pathways expanded in the United States, institutional mappings documented the growth of specialized degrees, certificates, and faculty profiles connected to engineering education scholarship (Aslam & Villanueva Alarcón, 2023, 2024). Yet EER doctoral training often demanded boundary-spanning work: students integrated engineering content knowledge with education theory, research methodology, and justice-attentive frameworks while navigating competing epistemologies across STEM and social science traditions (Borrego & Cutler, 2010; Klassen & Case, 2022).

In parallel, engineering education has been theorized as a cultural system shaped by historically dominant norms, such as meritocracy and narrow constructions of objectivity, that influenced who was seen as belonging and what forms of knowledge were treated as legitimate (Godfrey & Parker, 2010). In this context, the comprehensive exam did not simply assess what EER doctoral students knew; it also mediated how students were socialized into particular scholarly identities and disciplinary expectations.

Despite the centrality of comprehensive exams in doctoral training, many accounts of this milestone foregrounded process and outcomes while under-documenting the affective and embodied labor through which students lived the exam. Humanizing and justice-centered scholarship in higher education has argued that academic development could not be separated from power, identity, and relational experience, particularly for students navigating multiple marginalizations (Hooks, 1994; Kezar & Maxey, 2012). Related critiques of the academy highlighted how institutional norms could reproduce inequity by narrowing what counted as legitimate knowledge and by rendering vulnerability, grief, and cultural displacement academically unspeakable (Berry & Mizelle, 2006; Patton & Bondi, 2015). Within EER, scholars have likewise argued for centering marginalized voices and for methodological approaches, such as autoethnography, that make visible what traditional academic narratives often omit (Martin & Garza, 2020).

This paper used autoethnography to examine the doctoral comprehensive exam as an affective, relational, and identity-laden experience for a queer, first-generation, international doctoral student in engineering education. Autoethnography supported an analytic stance that situated personal narrative within broader cultural and institutional contexts, enabling reflexive attention

to how academic rituals were experienced, interpreted, and negotiated (Ellis et al., 2011). Rather than framing the comprehensive exam as a discrete hurdle, this study drew on Deleuze & Guattari (1987) concept of the rhizome to conceptualize the exam as a nonlinear process of becoming shaped by multiplicity, rupture, and recursive connection across ideas, relationships, and institutional demands (Deleuze & Guattari, 1987). Because EER has also been described as a community of practice built through participation, legitimacy, and shared meaning-making, the comprehensive exam was examined here as a site where belonging and scholarly identity were formed through relational and institutional encounters (Klassen & Case, 2022; Wenger & Snyder, 2000).

By foregrounding grief, cultural distance, and queer belonging as constitutive of doctoral work rather than incidental to it, this autoethnography contributed a humanizing account of comprehensive exams and extended ongoing conversations about equity and epistemic justice in doctoral education (Berry & Mizelle, 2006; Martin & Garza, 2020).

METHODS

This study employed autoethnography to examine how a doctoral comprehensive exam was lived as an affective, relational, and identity-forming milestone for a queer, first-generation, international doctoral student in Engineering Education. Autoethnography was appropriate because it positioned the self as both subject and analyst while situating personal experience within broader cultural and institutional contexts (Ellis et al., 2011). The study was guided by the research question: How do doctoral students navigate the comprehensive exam experience, and in what ways does it shape their transition from student to researcher? Rather than treating the exam as a discrete evaluative event, the inquiry was conceptually anchored in Deleuze and Guattari's (1987) rhizome, which oriented the analysis toward nonlinearity, multiplicity, rupture, and connection.



Figure 1. *Visual representation of a rhizome (ginger) used to anchor the study's rhizomatic conceptual framework.*

A rhizome, in its botanical sense, is a horizontal underground stem (e.g., ginger) that spreads through multiple shoots and nodes, growing outward in many directions rather than from a single trunk or root. Deleuze and Guattari mobilized this form as a metaphor for knowledge and becoming, meaning develops through networks of relation, multiple entry points, and unexpected connections rather than through linear progression or hierarchical order (Deleuze & Guattari, 1987). To support this conceptual framing, I included an image of ginger to represent a rhizome visually and to anchor the rhizomatic logic that guided the inquiry.

Data were collected over a two-month period in 2024 and included three primary sources: (a) personal journal reflections, (b) artistic collages, and (c) memory recall with informal peer dialogues. Journal entries documented shifting thoughts, affective states, and sense-making during exam preparation and writing, and journaling continued after the written portion to deepen reflection and support analytic revisiting of the experience (Ellis et al., 2011).

Visual collages were created in Apple Notes and included screenshots of messages exchanged with peers and close friends, photos taken or received during the exam period, and music listened to while writing; these artifacts served as affective records that captured sensory and relational dimensions not fully represented in text. In addition, memory recall drew on voice notes, text exchanges, and reflection prompts that had been produced during the exam period, enabling reconstruction of moments of uncertainty, support, and decision-making as they occurred and foregrounding the relational nature of navigating the milestone. Across sources, data were treated as interconnected traces rather than discrete units, consistent with rhizomatic commitments (Deleuze & Guattari, 1987).

Analysis followed a process of rhizomatic cartography that emphasized mapping over categorizing. To enhance depth and coherence in autoethnographic interpretation, I engaged in iterative cycles of immersion and return across modalities (Cooper & Lilyea, 2022). I began with prolonged familiarization through repeated reading of journal entries and repeated viewing of visual collages, alongside analytic memoing to track shifts in meaning over time. I then used descriptive, emotion, and in vivo coding as points of entry, methods that supported attention to affective intensities and authentic language, while resisting the impulse to stabilize findings into fixed themes (Saldaña, 2016). Building from these codes, I traced narrative lines and moments of rupture (e.g., grief events, institutional constraints, relational tensions) and mapped how these discontinuities generated new connections among intellectual work, emotional labor, institutional navigation, and identity formation (Deleuze & Guattari, 1987).

Excerpts included in the rhizomatic map were selected through iterative memoing and coding cycles, prioritizing moments of affective intensity, rupture, and relational significance. Selection was guided by their capacity to function as representative nodes in the map and to illustrate connections across experiences, rather than to achieve thematic saturation. The analytic product thus took the form of a layered narrative and visual mapping that foregrounded entanglement and “lines of flight” rather than closure.

Reflexivity was sustained throughout through memoing, iterative interpretation, and explicit attention to how my positionality shaped what was recorded, remembered, and made meaningful (Ellis et al., 2011). Although the study centered my lived experience, ethical care remained essential because peer communications were included as contextual traces; accordingly, I used pseudonyms, paraphrased identifying content, and obtained consent for any direct quotations. Rigor was supported through autoethnographic quality criteria emphasizing authenticity, resonance, reflexivity, and contribution, while aligning with engineering education scholarship that argues for centering marginalized voice as a methodological and ethical commitment (Martin & Garza, 2020; Paul et al., 2025a, 2025b; Yang, 2024).

FINDINGS

The Findings section was organized through a rhizomatic lens that traced the comprehensive exam as an entangled process of becoming rather than a linear milestone. Figure 2 served as the primary analytic map, with labeled nodes guiding how rupture, support, learning, and identity formation connected across the experience. Figure 2 presented my rhizomatic map, a visual-analytic representation of the comprehensive exam experience. Although the plant depicted is not a botanical rhizome, it is interpreted rhizomatically because its branching and continuously extending form foregrounds relation over hierarchy and growth as proliferation rather than linear progress.

The central stem functions as a provisional anchor rather than a single origin, while the leaves operate as multiple entry points into the network, allowing readers to encounter nodes without a fixed starting point or sequence. In this sense, the figure enacted *intermezzo*, because becoming was traced in the middle, across crossings and returns, rather than as a stable progression from “before” to “after.” The excerpts that grounded the interpretations in this section were displayed as labeled nodes in Figure 2, which readers may use as a companion text to follow how moments of rupture, support, and insight were mapped in relation to one another. Importantly, the “branches” in Figure 2 should not be read as themes in the conventional qualitative sense. Thematic framing typically implies bounded categories and interpretive closure, whereas a rhizomatic orientation resists partitioning experience into stable containers and instead emphasizes porousness, overlap, and continual re-connection.

Branch A interpreted intellectual growth as an iterative, recursive practice of learning rather than a sequential pathway toward mastery. Preparation and writing unfolded through cycles of uncertainty, reorientation, and renewed connection-making across ideas, tools, and scholarly resources. Understanding emerged through revisiting and recombining literature, comparing frameworks across contexts, and experimenting with strategies for synthesis, which positioned scholarly voice as something composed through return, revision, and recomposing rather than linear accumulation. Branch B mapped the emotional labor of sustaining scholarly work amid uncertainty, grief, and vulnerability, treating affect as constitutive of the exam experience rather than separate from cognition. The exam became a site where transnational grief, disrupted



The leaf-and-stem image can be read as rhizomatic not because it reproduces the botany of ginger, but because it performs the logic of rhizomatic becoming. It offered no singular origin and no trunk-like hierarchy, only a provisional “main” stem through which growth became briefly visible. Each upper stem remained connected to that central stem, yet the connection signaled relation rather than dependence, an interbeing where circulation and force moved across the structure without a chain of command. The stems did not progress upward as a linear sequence. They proliferated, diverged, and crossed the visual field as simultaneous beginnings rather than a single path of ascent. Each leaf appeared as a stand-alone node, an entry point that could be encountered without tracing back to a first cause, while still functioning as a threshold where the wider assemblage touched the world, singular but never isolated. In this sense, the image enacted intermezzo. Growth occurred in the middle, between stems and leaves, as dispersion rather than progress, and as emergence that thickened and bifurcated without resolving into an endpoint. Read this way, the map carried a philosophical claim about knowledge and identity. Becoming was not a ladder but a field of crossings, where detours were method, rupture was generative, and meaning was produced through entangled, recursive movement rather than straight lines.

Branch A: Intellectual Growth as a Nonlinear Process

“These questions feel like twenty, not four.”
“I don’t know where to begin.”
“How do I even start?”
“Let me see if there is any academic paper about comprehensive exams...”
“I really like the way this paper flows...”
“I should start using these tools (Litmaps, Connected Papers) ...”
“wow, this is such a genius idea.”
“Girl, Perplexity isn’t even that good...”
“None of them are actually helpful.”
“One area where I struggled was with the ‘impact’ and ‘method’ sections...”
“the final result didn’t align with how I had envisioned it”
“I wasn’t entirely clear on how each method complemented the methodology...”

Branch C: Institutional Structures and the Role of Support Systems

“It’s Spring Break. Nobody is really here.”
“I stayed behind to write. Alone.”
“My phone shows a memory from Dr. Basu: ‘You got this.’”
“Please let me know if there’s any way I can support you.”
“You just need a signature from your DSO to leave the country.”
“My partner and I are fighting.”
“Doesn’t he know I’m going through everything all at once?”

Branch B: The Emotional Labor of Navigating Uncertainty

“And then everything stopped.”
“Dida mara gase.” (My grandmother died)
“What am I supposed to do?”
“What do I even do?”
“Will I be stuck at the port of entry?”
“What will happen to my exam?”
“I’m in this alone.”
“She kept asking me to call her last week, and I didn’t.”
“Now, she’s gone. Not even blinking.”
“This is the cost no one talks about when we say we’re ‘studying abroad.’”
“It’s not just the time difference or the visa status, it’s the life difference.”
“I get highly distracted sometimes...”
“it was \$800, I can’t pay for it.”

Branch D: The Comprehensive Exam as Researcher Identity Formation

“I write so I don’t forget.”
“I write so I can breathe.”
“This autoethnography was not planned.”
“It emerged from rupture.”
“Each thread is a fragment of a larger truth.”
“I would really appreciate it if you could recollect your comp experience...”
“Honestly, I don’t recall making many mistakes...”
“but one area where I struggled was with the ‘impact’ and ‘method’ sections.”

Figure 2. *Rhizomatic map of the comprehensive exam experience.*

mourning rituals, and academic timelines converged, producing uncertainty shaped by distance, immigration precarity, and the embodied limits of attention and capacity. In this branch, grief operated simultaneously as rupture and catalyst, interrupting expected rhythms of productivity while reorganizing what counted as urgency, care, and survival within doctoral work.

Branch C interpreted the comprehensive exam as an institutional structure lived through an uneven ecology of support. Formal requirements provided the outer frame, yet navigation depended on relational and networked supports that were sometimes present, sometimes procedural, and sometimes insufficient for the complexity of the moment. Institutional touchpoints often addressed logistics more readily than emotional realities, while informal supports functioned as affective anchors that shaped endurance and belonging, underscoring support as a shifting assemblage rather than a stable resource. Branch D conceptualized the exam as a formative site of researcher identity formation rather than a mere demonstration of competence. Scholarly becoming emerged through writing, reflection, and dialogue, where producing text functioned as both intellectual practice and self-making. Identity did not crystallize at a single evaluative moment but took shape across iterative attempts to articulate voice, integrate method with purpose, and interpret rupture as part of scholarly formation.

Together, these branches framed the comprehensive exam experience as rhizomatic. Learning, grief, institutional navigation, and identity formation were not separable strands but entangled lines that connected and recombined across time. Readers may return to Figure 2 to trace how the labeled nodes substantiated these interpretive claims and to see how meaning was produced through relation, recursion, and intermezzo rather than linear progression.

CONCLUSION

This work-in-progress autoethnography refigured the doctoral comprehensive exam as a rhizomatic process of becoming that was lived through entanglements among learning, grief, institutional navigation, and queer, transnational identity. The rhizomatic map functioned as an analytic product, not a decorative summary, because it assembled textual and visual traces to show how meaning was produced through rupture, return, and re-connection rather than through linear progression.

This paper advanced four knowledge claims about doctoral milestones in engineering education research contexts. First, the comprehensive exam was experienced as an identity-forming event, not only an assessment of competence. Researcher identity was composed across iterative practices of writing, reflection, and dialogue, where scholarly voice emerged through recomposition rather than arrival. Second, grief operated as a structuring force in doctoral work. It reorganized time, attention, and capacity, while also generating new orientations to purpose and persistence. This claim aligned with scholarship showing that grief during doctoral study can be simultaneously disruptive and transformative, including autoethnographic work that documented how parental loss reshaped meaning-making and sustained doctoral continuation

(Ridgway, 2023). Third, institutional structures were lived as an uneven ecology of support. The milestone's formal requirements set the frame, but endurance often depended on informal networks that carried emotional and relational labor that institutions did not reliably recognize. Fourth, when the purpose and design of comprehensive exams remained unclear, the milestone risked amplifying confusion and stress rather than supporting scholarly development.

Recent mixed-methods research on doctoral comprehensive examinations similarly reported student confusion about exam purpose and called for clearer, more development-oriented designs that fit local contexts (Liu et al., 2024). Taken together, these claims suggested that doctoral milestones can reproduce epistemic violence when they treat affect, vulnerability, and cultural displacement as irrelevant to rigor.

Future stages of this research will extend the rhizomatic cartography through continued journaling, iterative collage-making, and collaborative interpretation to deepen the temporal and relational dimensions of the analysis. In addition, future work will incorporate dialogic engagement with other doctoral students to trace how similar or divergent experiences of grief, support, and identity formation emerge across contexts, as well as to explore how rhizomatic and visual methods can be taken up as shared analytic practices. These efforts aim to further examine how grief-informed and queer methodologies can cultivate more compassionate doctoral infrastructures and inform the redesign of milestone practices toward greater clarity, care, and inclusivity. Rather than treating the comprehensive exam as a neutral checkpoint, this study positions it as a cultural ritual that shapes what becomes speakable, whose labor is recognized, and what forms of scholarly life become possible.

CITED WORK

- Aslam, G., & Villanueva Alarcón, I. (2023). Exploring Contributions of U.S. Engineering Education Research Centers. *Proceedings - Frontiers in Education Conference, FIE*. <https://doi.org/10.1109/FIE58773.2023.10343418>
- Aslam, G., & Villanueva Alarcón, I. (2024). A Cross-Institutional Study of Engineering Education Faculty Profiles. *ASEE Annual Conference and Exposition, Conference Proceedings*. <https://doi.org/10.18260/1-2--46432>
- Berry, T. R., & Mizelle, N. D. (2006). *FROM OPPRESSION TO GRACE; Women of Color and Their Dilemmas in the Academy*.
- Borrego, M., & Cutler, S. (2010). Constructive alignment of interdisciplinary graduate curriculum in engineering and science: An analysis of successful IGERT proposals. *Journal of Engineering Education*, 99(4), 355–369. <https://doi.org/10.1002/j.2168-9830.2010.tb01068.x>
- Borrego, M., Streveler, R. A., Miller, R. L., & Smith, K. A. (2008). A New Paradigm for a New Field: Communicating Representations of Engineering Education Research. *Journal of Engineering Education*, 97(2), 147–162. <https://doi.org/10.1002/J.2168-9830.2008.TB00964.X>
- Cooper, R., & Lilyea, B. (2022). I'm Interested in Autoethnography, but How Do I Do It? *The Qualitative Report*. <https://doi.org/10.46743/2160-3715/2022.5288>
- Deleuze, G., & Guattari, F. (1987). *A Thousand Plateaus*.
- Ellis, C., Adams, T. E., & Bochner, A. P. (2011). Autoethnography: an overview. *Historical Social Research*, 36(4)(4), 273–290. <https://doi.org/10.12759/hsr.36.2011.4.273-290>
- Estrem, H., & Lucas, B. E. (2003). Embedded Traditions, Uneven Reform: The Place of the Comprehensive Exam in Composition and Rhetoric PhD Programs. *International Journal of Phytoremediation*, 21(1), 396–416. https://doi.org/10.1207/S15327981RR2204_4
- Gardner, S. K. (2008). Fitting the mold of graduate school: A qualitative study of socialization in doctoral education. *Innovative Higher Education*, 33(2), 125–138. <https://doi.org/10.1007/s10755-008-9068-x>
- Godfrey, E., & Parker, L. (2010). Mapping the cultural landscape in engineering education. *Journal of Engineering Education*, 99(1), 5–22. <https://doi.org/10.1002/j.2168-9830.2010.tb01038.x>
- Hooks, bell. (1994). *Teaching to Transgress: Education as the Practice of Freedom*.
- Kezar, A., & Maxey, D. (2012). *The Changing Faculty and Student Success Selected Research on Connections between Non-Tenure-Track Faculty and Student Learning*.
- Klassen, M., & Case, J. M. (2022). Productive tensions? Analyzing the arguments made about the field of engineering education research. *Journal of Engineering Education*, 111(1), 214–231. <https://doi.org/10.1002/jee.20440>
- Liu, K., Huang, C., Wang, H., Tang, S., & Liu, M. (2024). Nursing doctoral students' experiences of the courses and comprehensive examinations in China: a mixed-methods study. *BMC Nursing* 2024 23:1, 23(1), 831-. <https://doi.org/10.1186/S12912-024-02491-X>

- Lovitts, B. E. (2005). Being a good course-taker is not enough: A theoretical perspective on the transition to independent research. *Studies in Higher Education*, 30(2), 137–154. <https://doi.org/10.1080/03075070500043093>
- Martin, J. P., & Garza, C. (2020). Centering the Marginalized Student's Voice Through Autoethnography: Implications for Engineering Education Research. *Studies in Engineering Education*, 1(1), 1. <https://doi.org/10.21061/SEE.1>
- Patton, L. D., & Bondi, S. (2015). Nice white men or social justice allies?: using critical race theory to examine how white male faculty and administrators engage in ally work. *Race Ethnicity and Education*, 18(4), 488–514. <https://doi.org/10.1080/13613324.2014.1000289>
- Paul, A., Kaufman-Ortiz, K. J., Nattoo, C. A., & Tadimalla, S. Y. (2025a). WIP: Visualizing Transitions: Exploring Queer Engineering Students' Pathways to Graduate School through Collaging. *2025 IEEE Frontiers in Education Conference (FIE)*, 1–5. <https://doi.org/10.1109/FIE63693.2025.11328126>
- Paul, A., Kaufman-Ortiz, K. J., Nattoo, C. A., & Tadimalla, Y. (Yash). (2025b). From Queer Engineers to You: Insights into the Undergraduate-to-Graduate Transition in Engineering (WIP). *ASEE Annual Conference & Exposition*.
- Saldaña, J. (2016). *The Coding Manual for Qualitative Researchers* (3rd ed.). SAGE Publications.
- Weir, P., Markey, S., Nalbantoglu, J., Crump, A., & Ryoo, A. (2017). *Re-imagining PhD: Doctoral Comprehensive Exam Consultation Document The Comprehensive Examination-Rooted in History Working Group Composition*.
- Wenger, E. C., & Snyder, W. M. (2000). Communities of Practice - the organizational frontier by Wenger. *Harvard Business Review*, 139–145.
- Yang, J. A. (2024). Engineer, Asian, and Gay AF: Counterstory as Means for Methodological Activism and Intersectional Healing in Engineering Education. *Studies in Engineering Education*, 5(1), 73–97. <https://doi.org/10.21061/see.123>