EmTech Anthropology

Careers at the Frontier

Edited by Matt Artz and Lora Koycheva

ANTHROPOLOGY AND BUSINESS

ROUTLEDGE

"Anthropology is in the throes of change as fieldwork and problem solving are expanding rapidly into organizational settings, particularly in tech. Today's trailblazers are partnering with others as active problem solvers at the 'cutting edge.' Gone is anthropology's insularity, as new theory, methods, and models are tested and put to use serving diverse communities. These anthropology innovators bring a 'solutions mindset' to their work as they reinvent what anthropology is and demonstrate its value and impact."

Elizabeth K. Briody, *Founder and Principal of Cultural Keys LLC and Chair of Anthropology Career Readiness Network*

"This book presents a compelling premise: anthropology, once a prominent public platform for voicing concerns, lost its way in higher education and society. But anthropologists in business today are intervening to create meaningful change by confronting our most vexing human problems. The authors detail how a new generation of business anthropologists are applying their knowledge to shape sociotechnical transformations in AI, robotics, genetic engineering, and other emerging technologies, while addressing what it means to be human. Readers can enjoy a series of rich, informative, and descriptive stories of careers, choices, and actions that anthropologists take to make transformational change happen, and it comes at a highly relevant time: to portend not just the future of technology but potential futures of humankind."

Timothy de Waal Malefyt, *Ph.D. Clinical Professor of Marketing at the Gabelli school of Business, Fordham University*

"Visions of the frontier run deep in anthropology. They separate the familiar from the exotic and set the stage for the anthropologist to venture beyond and bridge the gap. Today's frontiers are technological and constantly shifting. *EmTech Anthropology* offers a fascinating, personal, and deeply compelling introduction to how anthropologists can navigate our unfamiliar futures with tech like AI, robotics, or genetic engineering – and help the rest of us do the same."

Anders Kristian Munk, *Professor of Computational Anthropology, Technical University of Denmark*

"A healthy, heartfelt piece of food for thought for all anthropologists who work in interdisciplinary teams – and not least those who do not, yet! Served with humor, the authors remind us to move beyond our anthro-egos and embrace the perspectives of 'the other' to enable the impact of our discipline. The brilliance of the argument is that we must shift our own perspectives and look outwards, to enable making our own perspectives relevant for the sake of a better future of tech."

Louise Vang Jensen, *Anthropologist, co-CEO and Partner in the Strategic Innovation Agency, IS IT A BIRD*

"*EmTech Anthropology* masterfully explores the intersections between anthropology, business and engineering, and challenges anthropologists to become *anthro-solutionists* – innovators who combine anthropological knowledge and insights with the development of people-centred technological solutions that will shape our future. It acts as a catalyst for inspiration and will definitely shape the path of the next generations of students, researchers and practitioners in the dynamic landscape of emerging technologies. In short, a powerful book."

Dan Podjed, *Associate Professor, Research Centre of the Slovenian Academy of Sciences and Arts*

"This unique collection offers potential ways for anthropologists to chart new courses within the emerging technology landscape. Rather than serving as insight providers within tech business models, these authors call for anthropologists to lead the way toward developing novel forms of serving human needs through technology. Rooted in a fresh perspective of the discipline, they see a world where anthropologists drive new offerings that prioritize the dynamics of human interactions as the starting point."

Jay Hasbrouck, *Ph.D., Author of* Ethnographic Thinking: From Method to Mindset

EmTech Anthropology

EmTech Anthropology: Careers at the Frontier emphasizes anthropology's critical role at the frontier of emerging technologies (EmTech). The book explores the opportunities and challenges that arise as anthropologists venture into the territory of EmTech, pushing the boundaries of traditional academic approaches and methodologies.

By sharing the stories and insights of early to mid-career anthropologists working in AI, robotics, Web3, cybersecurity, and other cutting-edge fields, the book provides a possible roadmap for future practitioners seeking to make an impact in the world of EmTech. These anthropologists demonstrate how the discipline's unique perspective and skills can be applied to address the complex ethical, social, and cultural implications of emerging technologies.

The volume showcases how anthropologists can act as visionaries, innovators, and early adopters, shaping the trajectory of EmTech towards more ethical, equitable, inclusive, and sustainable futures. It highlights the importance of interdisciplinary collaboration, practical impact, and intervention in EmTech contexts while also acknowledging the need for anthropologists to challenge existing narratives and push the boundaries of the discipline itself.

EmTech Anthropology: Stories from the Frontier serves as an essential resource for anthropologists, students, and professionals from related disciplines who are interested in exploring the frontiers of anthropology and emerging technologies. By offering a glimpse into the exciting possibilities and compelling insights that emerge when anthropology meets EmTech, the book inspires and guides the next generation of anthropological innovators.

Matt Artz is an anthropologist, designer, and technologist specializing in AI product development. He is the founder of Azimuth Labs, host of the *Anthropology in Business* and *Anthro to UX* podcasts, and co-editor of *EmTech Anthropology* and the forthcoming *Anthropology and AI*. His work has been featured on TED, UNESCO, South by Southwest, and Apple's Planet of the Apps.

Dr. Lora Koycheva is an anthropologist and technologist working at the intersection of anthropology, innovation, entrepreneurship, and robotics. She is Assistant Professor at the Chair of Technoscience Studies in Brandenburg Technical University. She is also building Robots, actually! – a global initiative to rebuild the human condition with robots. From 2020 to 2023, she was a convenor of the EASA Applied Anthropology Network. She holds a PhD in Anthropology from Northwestern University.

Anthropology and Business

Crossing Boundaries, innovating praxis

Series Editor: Timothy de Waal Malefyt

Both anthropology and business work at the forefront of culture and change. As anthropology brings its concerns with cultural organization and patterns of human behavior to multiple forms of business, a new dynamic of engagement is created. In addition to expanding interest in business as an object of study, anthropologists increasingly hold positions within corporations or work as independent consultants to businesses. In these roles, anthropologists are both redefining the discipline and innovating in industries around the world. These shifts are creating exciting cross-fertilizations and advances in both realms: challenging traditional categories of scholarship and practice, pushing methodological boundaries, and generating new theoretical entanglements. This series advances anthropology's multifaceted work in enterprise, from marketing, design, and technology to user experience research, work practice studies, finance, and many other realms.

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Edited by
Matt Artz and Lora Koycheva

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Acknowledgments

This book is about AI, robots, Web3, spaceships, and genetic engineering as emerging technologies, but we do not forget that, for all intents and purposes, books themselves also fall into that category. They are a technology that is never quite finished, and they have multiple beginnings scattered throughout a wide array of encounters, conversations, formal inquiries, and serendipitous finds along the journey of any anthropologist. We want to acknowledge those who have helped us in our thinking, our writing, and our continuous meanderings into the world of emerging technologies – not only directly but also indirectly, through the sheer force of their own applied and scholarly work as anthropologists in the world of technology.

First and foremost, we want to thank the authors in this book for sharing their inspiring stories and allowing us a glimpse into their journeys. We are enormously privileged to have been able to work with them in shaping the collection, and could not be more grateful for the experience of editing their work, which has made us rediscover fascinations in oldies but goodies (the Kula ring lives!), learn something new about the world we thought we knew (beer as a medieval form of bioengineering!), and find new energy in championing EmTech anthropology.

At Routledge (Taylor & Francis), this book has found a champion in Meagan Simpson. Her expertise and assistance have been invaluable, ensuring our journey through the publishing process was as smooth and successful as possible.

A special thanks is also due to Timothy de Waal Malefyt for his unwavering dedication to the field of anthropology. His books, including his most recent, *Business Anthropology: The Basics*, have been cornerstones in our understanding of the discipline. His work not only enriches the academic community but also serves as a guiding light for practitioners in the field. Beyond his professional commitment, Timothy's generous friendship and personal mentorship have been a source of profound inspiration and support that we are grateful for.

We must also acknowledge other mentors and friends who have shared with us the generosity of their time, insights, expertise, and fundamental human kindness at various times in our individual journeys, which eventually converged in writing this book. There are far too many to list here, but we want

to thank, in no particular order, Elizabeth Briody, Robert Morais, Julia Gluesing, Christine Miller, Jay Hasbrouck, Patti Sunderland, Rita Denny, Cathleen Crain, Tom Maschio, Simon Roberts, Melissa Vogel, Susan Squires, Christina Wasson, Uldarico Rex Dumdum, Anders Kristian Munk, Dan Podjed, Louise Vang Jensen, Andrew Causey, the late and inimitable Joan Erdman, Robert Launay, Helen Schwarzman, Angela VandenBroek, Rafael Hostettler, Alona Kharchenko, Inga Treitler, and Katie Hillier.

Gratitude is also due to the many Language Learning Models (LLM) for becoming newfound creative sparring partners.

Last, but certainly not least, we must sincerely thank our families and partners for their love and support in putting up with our idealist, weird, impossible obsessions, not just when writing this book but throughout our *punk*, fringe, and misfit lives.

All mistakes are, as ever, our own.

Foreword

As an anthropologist who has spent over 30 years working at the intersection of business, technology, and culture, I was thrilled when the editors approached me to write the foreword for this timely volume, *EmTech Anthropology: Careers at the Frontier*. In the realms of knowledge and technology, it is rare to encounter a work as insightful and timely as the one presented in this volume. As an enthusiastic advocate for the fusion of traditional disciplines with emerging technologies (EmTech), I find myself aligned with the book's premise that anthropologists have a unique opportunity to play a critical role in how emerging technologies shape society and to participate as innovators themselves.

I first met Matt Artz at an American Anthropological Association conference and just recently had the pleasure to hear him speak about emerging technologies and the anthropological discipline at the 2023 Global Business Anthropology Summit in Mexico City. Our recent conversations have convinced me that he is a rising intellectual leader and pioneering practitioner in the burgeoning domain of business anthropology. Matt is an anthropologist, designer, and strategist, who stands at the crossroads of user experience, service design, and product management. His work, marked by innovative design and strategic thinking, has gained recognition from prestigious platforms such as Apple's Planet of the Apps and the South by Southwest (SXSW) Pitch Competition. His podcasts, including *Anthropology in Business* and *Anthro to UX*, reflect his commitment to exploring the transformative power of anthropology in business and technology. Matt's co-editor, Lora Koycheva, has a similarly unique blend of skills and experiences in emerging technologies through her work at the intersection of anthropology, innovation and entrepreneurship, STS, and robotics. Trained as a four-field anthropologist, she has been experimenting with building a hybrid practice which spans industry and academia. She has been working proactively to introduce anthropological methods and theories to the vast field of robotics and is a known champion of applied anthropology through her recent convenorship of the Applied Anthropology Network of the European Association of Social Anthropology.

A vivid narrative of Google's journey and its anthropological undertones, sets a profound backdrop for the book's exploration of the intersection

between anthropology and emerging technologies. Google has had a monumental impact on accessing and organizing global knowledge. This story is not just about technological innovation; it's an exploration of the anthropological essence in these advancements. From Google's early algorithms to its latest advancements in search experience, the authors articulate how these developments parallel anthropological endeavors in understanding human knowledge and culture.

This book raises a pivotal question: What if anthropologists had pioneered such technological ventures early on? The text contemplates the historical skepticism within anthropology towards external opportunities, suggesting a missed chance for anthropologists to lead in technological innovation. This reflection sets the stage for a broader discussion on the role of anthropologists in emerging technology, a domain rapidly reshaping our society and the very fabric of human interaction.

The book's core argument is that anthropology, traditionally engaged with frontier work, broadly defined, has often been reactive rather than proactive where the emerging technologies frontier is concerned. The authors highlight missed opportunities where anthropological insights could have been pivotal. They advocate for a proactive anthropology that not only theorizes but also enacts and innovates within the EmTech space.

The narrative then shifts to the potential roles and career paths for anthropologists in the burgeoning field of EmTech. It emphasizes the need for anthropologists to move beyond academic boundaries and engage actively with the private sector, where their expertise should be actively championed, especially in technology companies.

The editors and their contributors reimagine the role of anthropologists as innovators and early adopters in EmTech. They call for, and are exemplars of, a new breed of anthropologists who are not just observers but active participants in shaping technological futures. The innovator stories in this collection – spanning roles in startups, consultancies, social justice movements, tech firms, and academia – provide an invaluable roadmap for that future. They model how anthropological skills translate powerfully to EmTech, organically blending intellectual inquiry with pragmatic, real-world, problem-solving impact. From AI ethics to space mission planning teams, these anthropologist-innovators locate practical openings to enact positive change. They hybridize methods and theory in context-sensitive ways. And they collaborate broadly to bridge disciplines. The authors' manifesto for anthropological innovation is a clarion call for the discipline to embrace its potential in shaping technology that is ethical, inclusive, and responsive to human needs.

In essence, this book is a bold and necessary step towards bridging anthropology and EmTech. It is a guide for current and future anthropologists to navigate and contribute to the rapidly evolving technological landscape. As someone deeply invested in this convergence, I am excited about the possibilities this book opens up for the discipline of anthropology and the broader field of technology – and for the tone it sets to the next cohorts of anthropologists entering EmTech.

The book also arrives at an urgent moment. Emerging tech promises to reshape society in unprecedented ways, demanding informed, ethical guidance and alternative visions. Anthropology is uniquely positioned to provide critical interventions into the sociocultural dimensions of EmTech innovation. By getting in early as user researchers, founders, and strategists, anthropologists can steer technology towards inclusive, equitable goals, making business more responsible and human-centered. The stakes could not be higher at this historic juncture. I cannot wait for perceptive, reflective readers to deeply explore these fascinating stories and begin dynamically charting their own trajectories as engaged anthropological innovators helping responsibly direct the future of emerging technologies. Our shared tomorrow depends on anthropologists making choices today.

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Thomas Scott Hughes is a Ph.D. Cultural Anthropologist with over a decade of experience developing innovative strategies for world-leading organizations based on a deep understanding of human behavior and what can enable teams to connect as people. Thomas is passionate about using his insights from the world of academic research to create uniquely impactful results for businesses. His work has focused on driving value for organizations though deepening their understanding of their organizational culture and the customers they serve.

Dr. Kate Sieck is director of the Harmonious Communities team within the Human-Centered AI (HCAI) division at Toyota Research Institute (TRI). Dr. Sieck is focused on integrating social theory and context to the development of novel technologies. Prior to TRI, Dr. Sieck led research teams in the nonprofit sector (RAND Corporation), in marketing and consulting (OLSON, ReD Associates), and was a faculty member at several universities (Emory, Stanford). Dr. Sieck holds a bachelor's degree in anthropology from the University of Chicago, a master's degree in medical anthropology from SOAS in London, and a Ph.D. in anthropology from Emory University.

1 Introduction

Matt Artz and Lora Koycheva

What If We Were There?

In 1998, two doctoral students founded a company with the vision to "organize the world's knowledge and make it universally accessible and useful" (Google, n.d.). A quarter-century later, that startup, Google, has had an incalculable impact, having permeated and shaped the everyday lives of billions of people. Through its search engine and related products, Google now dominates how people discover information, communicate, collaborate, exchange goods, navigate, and even conduct academic research.

At the core of Google's efforts was its search engine based on PageRank, an algorithm that counted the number and quality of inbound links to determine a webpage's relative significance (Page, 2006). While seemingly trivial, this approach to designing a search engine revolutionized information retrieval and created one of the early super unicorns – a private company with a billion-dollar or more valuation – valued at $23 billion when it went public in 2004.

Since then, driven by its vision, commitment to innovation, and its ever-expanding coffers, Google has continued its relentless march toward organizing the world's knowledge. In 2012, it announced the Google Knowledge Graph, a graph database intended to model the semantic relationships between entities and concepts. With over 500 billion facts on over 3.5 billion entities, the Google Knowledge Graph aims to imbue Google's systems with an anthropologist-like grasp of the relationships and meanings that exist in the world (Sullivan, 2020). External sources estimate this has since grown to at least 5,000 billion facts and 50 billion entities (Barnard, 2023).

Then, around 2019, Google deployed Bidirectional Encoder Representations from Transformers (BERT), integrating advanced Natural Language Understanding (NLU) capabilities into its search architecture (Nayak, 2019). This innovation enabled Google to interpret the context of search queries more holistically by analyzing words in relation to the entire sentence rather than processing them in isolation. This change significantly enhanced how the search engine comprehended and made sense of human language.

More recently, and building on the work of BERT, it introduced the Search Generative Experience (SGE) based on the Multitask Unified Model

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(MUM), an update to BERT that better handled the nuances of human language and offered multimodal and multilingual capabilities (Pichai, 2023). As of writing this introduction, SGE is now making use of Google's latest model, Gemini, which was natively trained to offer advanced multimodal reasoning, creating a new search experience that is inherently anthropological in its multimodal, multilingual, and multivocal capabilities that are intended to holistically synthesize knowledge across cultures (Pichai & Hassabis, 2023). While it is too early to say if SGE will replace the traditional search engine, the implications of AI-based answers in search engines (Barnard & Artz, 2023) could be world-changing if it succeeds in democratizing access to knowledge by breaking down existing barriers, such as language, literacy, sight, and hearing.

In sharing this story, we acknowledge that Google's system has tremendous gaps in its knowledge, is not universally equitable for political economy reasons anthropologists are well versed in, and is plagued by daunting questions, not least those concerning accuracy, provenance, and ownership. Yet, despite those shortcomings, we still ask, why didn't an anthropologist create a solution and found a company like Google?

Anthropology's *raison d'être* is intimately concerned with relations, language, knowledge, and its representation, and as we will argue, innovation and the insights anthropologists produce are critical to responsibly designing such systems. So then, why didn't an anthropologist create Google?

Perhaps it would have been a venture by anthropologists had anthropology at the time not been generally suspicious and dismissive of the possibilities that the world outside of academic can offer to the academically trained. Could have, would have, should have – and wasn't. Although today, Google employs many anthropologists who offer insights in various roles – from user experience to strategy to foresight – we cannot help but wonder how Google would have looked if an anthropologist had been employee number 1 to 5 – or, indeed, a co-founder.

This question is not entertained nearly enough when we consider anthropologists' roles and careers in emerging technologies and innovation more broadly. This is a blind spot, which – given the speed and scale of disruptions that emerging technologies (EmTech) spell out for billions of people – we want to start correcting in this volume.

We make the case that although anthropology regularly engages with EmTech as a field, it has missed too many opportunities to get ahead of the changes brought forth by more recent EmTech. One such example is the convergence of mobile and social media, which has contributed to a rise in misinformation, extremism, and the erosion of democratic values (Jungherr & Schroeder, 2021; Iosifidis & Nicoli, 2020).

While it may be too late to fix social media, it is not too late to get ahead of other EmTech. In fact, the chapters that follow will demonstrate that now is an even more crucial time for anthropologists to forge new paths for themselves and the discipline in EmTech, as these technologies open up new

fields for inquiry and practice as they offer us ways to expand and update our methodological toolbox; and, most importantly, allow anthropology to not only theorize and critique technology but to co-opt it and own it – a fundamental shift from insights and diagnosis to enactment and innovation.

Anthropology at a Crossroads

We undertook this volume because there are increasingly internal and external headwinds complicating the status quo of academic anthropology, but there are also opportunities for anthropologists in business. Opportunities, not just in terms of *any* job but fulfilling work where we can have agency and enact meaningful change by intervening in some of the most vexing problems humans have ever faced. For the coming years are likely to be defined by rapid socio-technical transformation brought on by EmTech, such as AI, robotics, genetic engineering, nanoparticles, space travel, quantum computing, and other yet-to-be-imagined technologies that will drastically reshape what it means to be human. Further, these disruptive transformations will continue to unfold within the context of climate change and war, both of which are causing mass migrations and adding additional pressures on individuals and institutions. Collectively, the disruptive impacts of these forces present us with unprecedented challenges and opportunities that require that business – and anthropology – are not done as usual. Ways that we argue could and should involve anthropologists, though at the same time, we must also avoid the hubris of the past.

Anthropology, despite being a historically significant discipline, suffers from an innovator's dilemma to liberally take inspiration from Clayton Christensen (Christensen, 1997). We argue it has lost its leadership role in higher education and society more broadly (however polemic and contested it was). As an incumbent discipline, it has undoubtedly not remained static, as we will describe. Yet, it has struggled to establish broad and popular relevance, especially when compared to disciplines and practices such as artificial intelligence, data science, economics, psychology, and design. In broadly orienting itself inwardly toward academic insularity rather than outwardly toward applied impact, anthropology has positioned itself as an often out-of-touch discipline. Further, it has been harmed by its lack of career readiness. These issues have created identity and legitimacy crises that further disenfranchise it as a sought-after body of knowledge and practice.

Unconventionally, we believe that many anthropologists have adopted a narrative that overestimates the uniqueness and superiority of our discipline compared to others. In informal gatherings, conferences, and private conversations, an unwelcome assumption often lingers: That the value of anthropology is self-evident and unparalleled. We frequently hear people disparage other disciplines, near and far, especially those in business, tech, and engineering, leaving us to wonder, what happened to our empathy and appreciation for "the other?" Unfortunately for our discipline, the corollary

that naturally follows from this reasoning is that anthropology is the greatest of all disciplines and the missing ingredient whenever there is a problem. But if that is true, why aren't more anthropologists in the room? And why, if it is so great, does everyone not immediately realize it?

To be clear, at the same time, we do firmly believe anthropology is great in that it offers humanity tremendous value, difficult to master mindset and skills, and that it can and should contribute to all of the challenges and opportunities societies face, but we also argue that we need to reach across the aisle and challenge our narrative because the paradox between what we tell ourselves when we are together and the external reality, can't be starker. This can be seen in several existential crises of legitimacy. Politicians and government officials, such as then-Governor Rick Scott of Florida and Shad White of Mississippi, have questioned why subjects like anthropology should be taught within their states (NPR, 2011; Hartocollis, 2023). Well-regarded universities like Ithaca College, Howard University, Sheffield University, and the University of Western Australia have closed anthropology departments altogether. These developments are further compounded by entrenched institutional dogmas and highly institutionalized dynamics, usually coupled with tenure-track research demands and deliverables. They, in turn, often resist a more improvisational, interdisciplinary, experimental, and practical trajectory for the discipline outside of academia.

Additionally, an academic employability crisis has emerged due to an excess of trained anthropologists relative to available academic positions, resulting in a decline in anthropologists hired for academic roles since 2007 (Speakman et al., 2018). Within this glut, highly disturbing issues are emerging, such as personal stigma, mental health struggles, and financial hardship (e.g., Fotta et al., 2020). Instead of being an exception, the adjunctification of labor – a widespread academic practice across national contexts – has become the norm, with its exploitative nature disproportionately affecting women (e.g., Bataille et al., 2017; Fotta et al, 2020).

Yet, in the face of these crises of identity and legitimacy, there are many reasons to be hopeful and inspired.

Remobilizing Anthropology's Ethos

Most notably, we are hopeful and inspired because there is no shortage of meaningful work that can benefit from anthropology, such as Google's quest to organize the world's knowledge – if we are willing and able to meet the challenge. And despite the overall sentiment about anthropology in politics and the media, private sector organizations have shown an appreciation of anthropology despite their increasing reliance on other disciplines. Nowhere is this more present than in tech, which, despite the layoffs of 2022 and 2023, continues to remain one of the sirens calling anthropologists to a fulfilling life outside of academia, contributing to the growing alt-ac (alternative-academic) movement.

Most notably, UX research, strategy, service design, and product management have been the roles attracting significant attention, with startups and large multinational companies like Meta, Netflix, Google, and Atlassian thrilled to hire anthropologists. Freelance and consulting services provided by anthropologists, such as those by Stripe Partners and IS IT A BIRD, are also growing and thriving. Finally, as highlighted in this volume, there is a growing trend of tech companies founded by anthropologists such as McKay, Koycheva, and Artz. These companies are increasingly introducing "anthropology-first" tech products to the market.

The recognition from the private sector, especially in light of the state of academic anthropology, is long overdue and directly indebted to the early trailblazers (Briody, 2023) working at the intersection of anthropology, business, innovation, and technology, such as Lucy Suchman, Jeanette Bloomberg, Genevieve Bell, Sarah Pink, Kate Crawford, danah boyd, Mary Gray, Melissa Cefkin, Tracey Lovejoy, and Ken Anderson, to name but a few. These early adopters helped to open the scholarly horizons of anthropological inquiry into the world of technology. They demonstrated how researchers can promote interdisciplinary collaboration in both industry and academia and effectively integrate the critical analysis of socio-technical systems with human-centered design to influence innovation, policy, ethics, and public discourse.

Contributing to this shift, professional initiatives like EPIC, The EASA Applied Anthropology Network, and The Anthropological Career Readiness Network are helping to overcome decades of disdain for practicing anthropology and reshaping anthropologists' perceptions of non-academic careers and employment opportunities. As a result of this shift, there has also been a steady increase in publications of inspiring books, demonstrating the value of anthropological thinking and ethnography to other disciplines and practices such as those by Paul Dourish, together with Genevieve Bell (2011), Tom Boellstorff and Bill Maurer (2015), Maja Hojer Bruun (2022), Nick Seaver (2022), and Sarah Pink (2022).

Anthropologists have also made their mark in other closely associated areas of business, such as marketing, advertising, consumer research, design, and organizational studies, with genre-defining works by Allen Batteau (2009), Timothy de Wall Malefyt and Robert Morais (2012, 2017), Timothy de Wall Malefyt (2023), Melissa Cefkin (2010), Gary Ferraro and Elizabeth Briody (2015), Elizabeth Briody, Robert Trotter, and Tracy Meerwarth (2016), Patricia Sunderland and Rita Denny (2016), Julia Gluesing (2024), and Chris Miller (2024, 2018), among others, showcasing the transferability of traditional anthropological theories to the business sector.

Within this context, efforts to translate anthropology to a broader range of publics and professionals by demonstrating how to "see" and "think" like an anthropologist have gained much appreciated and needed popularity. Books like *The Ethnographic Mindset* by Jay Hasbrouck (2018), *Why the World Needs Anthropologists* edited by Podjed et al. (2020), *Anthropologists Wanted*,

edited by Bakker et al. (2021), and *Anthro-Vision: A New Way to See in Business and Life* by Gillian Tett (2021) offer a range of perspectives on the usefulness and applicability of anthropological thinking, including its ability to collaborate with other fields. Tett, editor of the *Financial Times* and a trained social anthropologist, argued that in the age of artificial intelligence, the world needs *anthropological intelligence*, a unique perspective that anthropologists bring to any domain (Tett, 2021).

Additionally, career-oriented books exist on applying anthropology in professional settings, specifically the works of Riall Nolan (2003, 2017) and Sherylyn H. Briller and Amy Goldmacher (2020). These texts offer direction to those seeking a career in anthropology by exploring themes like defining professional aspirations, obtaining necessary expertise, securing positions across diverse industries, and implementing anthropological principles in various workplaces. Furthermore, they underline the significance of cooperation, collective effort, continual development, and substantial contribution to the profession and the field.

Finally, digital media, such as podcasts like *Anthropology in Business, Anthro to UX, This Anthro Life*, and *Response-ability.tech*, as well as blogs and newsletters, are extending the reach of anthropological insights to a broader audience than ever before. For example, Artz (this volume), in designing the architecture of his website, made use of knowledge graph and semantic search concepts to increase the discoverability of his blogs and the *Anthropology in Business* and *Anthro to UX* podcasts in search engines.

Concomitantly, new institutional formats are emerging, carving out much-needed space within academia to integrate anthropological knowledge and mindsets in technical realms, particularly engineering. Programs like the Cybernetics School at the Australian National University, The Emerging Technologies Lab in Melbourne, and the Techno-Anthropology Lab in Denmark are pushing the boundaries of anthropology, especially into disruptive emerging technologies.

This volume builds upon all of these previous efforts to inspire, educate, and make anthropology public, and aims to guide those trying to forge an alt-ac career and maintain an innovative anthropological practice that has impact, and gives meaning to the practitioner. To that end, we contend that business broadly, but EmTech specifically, allows anthropologists to remobilize their relationship with several key concepts and principles in anthropology. Further, it forces anthropologists to refocus instead on their own sense – and capacity – of agency, as professionals and as individuals, and their trademark anthropological ethos in enacting change in the world. In doing so, EmTech offers anthropology novel opportunities to examine how to innovate and expand on its trademark approaches – relativism, critique of capital and (post)colonial systems, and systems of power – and do something about them by mobilizing what the discipline has already established through studying them in a critical, theoretical vein.

To accomplish this, the volume highlights alternative career paths for anthropologists at the intersection of technology, culture, and society, as demonstrated through practitioners' stories from the EmTech frontier. In doing so, we hope to encourage other anthropologists to adopt and perform the role of early adopters (Rogers, 1962), albeit applied to a research space. Our goal is for them to position themselves as invaluable early contributors responsible for shaping EmTech, as an anthropologist should have been at Google. We want more employees, 1 to 5. Better yet, we want founder-anthropologists!

To that end, this volume is as much about anthropology's role in EmTech as it is about the stories of emerging anthropologists forging a career at technology's ever-expanding frontier. More to the point, it is about the intersection of the two, where improvisation happens, tensions arise, and new opportunities are born. The volume charts what these opportunities can be: For anthropology as a discipline, for emerging tech utilizing anthropology, and for the career of anthropologists working at this intersection. It is in this frontier space – the cutting edge of technological development – that anthropologists discover, abandon, and realize possibilities for the future – not just the future of technology but the future of anthropology.

The EmTech Opportunity

As a technology classification, EmTech represents a rapidly evolving area without a universally agreed-upon definition. Popular business and innovation publications often define such technologies based on their disruptive potential, a common business trope that owes its origins to Christensen (1997). For instance, the MIT Technology Review described EmTech as "radically transforming business, disrupting the technological status quo, and reinventing the way people work" (Ivory-Ganja, 2020).

Scholars of other disciplines have often emphasized various characteristics such as potential economic impact, uncertainty, novelty, and growth (e.g. Rotolo, Hicks, & Martin, 2015; Boon & Moors, 2008; Porter & Detampel, 1995; Small, Boyack, & Klavans, 2014). The concept of emergence is also a notable trait, given that these technologies are frequently depicted as being on the verge of realization.

This is exemplified by publications such as *MIT Tech Review, Popular Science, WIRED*, and others that release annual compilations of the most notable or imminent technologies set to revolutionize our lives that year. In recent times, these lists have primarily featured a diverse array of AI, biotech, Web3, robotics, automation, and other technologies examined in this volume. While many of these technologies have materialized to some extent, past EmTech seldom disrupted life as predicted and often failed to emerge as anticipated. Despite this, the discourse continues yearly, resulting in an emergent frontier that continually pushes out into the future.

The evolving landscape of technology, marked by these ever-changing predictions and innovations, presents a perfect opportunity for anthropology to engage with the frontier once more. Anthropology has long been familiar with the concept of emergence and frontiers in both physical and existential terms. As the discipline's history shows, it has a long albeit conflicted and well-critiqued tradition of going where no contact had yet been made in an ostensible effort to understand "others" and often fueling, intentionally or not, early modern ideas of European civilizational superiority that still endures today (e.g., Launay, 2018). Perhaps more radically still, what we might call early forms of anthropological thinking have been shown to shape the practices and endeavors of colonial officials as well as New World missionaries and adventurers (e.g., Laven, 2012; Montero, 2012), going as far back as Herodotus as the first example of an anthropologist making sense of a foreign world, at the edge of the map (e.g., Roberts, 2011). From the anthropological encounter as a knowledge practice coopted by colonialism (Asad, 1973) to the anthropological encounter as a means to decolonize anthropology (Faier & Rofel, 2014), anthropology's relationship to the frontier is in many ways indelible, not only in spatial but also in practical terms. Anna Tsing has succinctly suggested that frontiers are "not just discovered at the edge; they are projects in *making* geographic and temporal experience" (Tsing, 2005, 53; our emphasis).

In this sense, the frontier has always been both an antecedent and a product of anthropology. It is something that we both discover and that we make through our work as anthropologists. As a discipline, anthropology often relies on thinking with and working through outlying cases. What we call "everyday life" can be easily seen as what happens under the bell curve, and anthropologists regularly claim "everyday life" as their domain of inquiry and excel at it. Yet, it could be argued that the virtuosity of the discipline is to extract insights about everyday life precisely from outliers, outcasts, bellwether figures, models, and even events (e.g., Whitington, 2013).

Moreover, such a peripheral positioning also represents the continued marginal positions of such practitioners, whether seen from the center of tech or anthropology. In tech, anthropologists are rarely in as early as employees 1 to 5. Even those who join later rarely rise to highly influential positions capable of enacting significant change related to the organization's strategic intent. In anthropology, those who work at the EmTech frontier are just as often either regarded as traitors of sorts, working with otherwise demonized corporate entities, or else accused of falling prey to techno-solutionism and naive optimism.

And yet it is precisely this vantage point – on the edge of things – which we find full of potential for the future of anthropology as a discipline and for the relevance of the anthropological career as a professional role. Veena Das and Deborah Poole have paradigmatically argued that anthropology's position in the margins of the state has allowed the discipline to gain critical distance from its operations in pursuit of theorizing it (Das & Poole, 2004). The discipline's equally marginal position to emerging tech would afford it critical

proximity in pursuit of practical impact and intervention. The workings of how such critical proximity might look are what the authors demonstrate in this volume.

The frontier represents, therefore, not only the temporal orientation of the work of these anthropologists in an anticipatory (English-Lueck & Avery, 2020; Stephan & Flaherty, 2019), future-oriented (Pink, 2022), and even untimely (Rabinow, 2011) vein. It also represents the personal risks such practitioners take in opting out of the familiar, if deceptive, comforts of the academic track and designing a career outside of existing templates, much in the sense of edgework as taking risks (Lyng, 2014).

Navigating this uncharted territory, anthropologists are increasingly venturing into studying EmTech and its societal implications. Yet despite longstanding theoretical conversations around emergence (e.g., Fischer, 2020), the exploration of EmTech from an interventional anthropological perspective has received relatively limited attention. Only recently has the topic garnered an increasing interest, most notably from Sarah Pink (e.g., Pink, 2022) and in design anthropology more broadly (e.g., Otto & Smith, 2020).

These trailblazers work at the crossroads of anthropology, business, innovation, and technology and have taken the lead in broadening the scope of anthropological inquiry in this domain. They have investigated crucial aspects such as the cultural dimensions of technology, AI ethics, social implications of machine learning, technology's intersection with society and youth culture, and the influence of EmTech on labor and identity. Their work has enriched our comprehension of the intricate relationship between technology, society, and culture and underscored the significance of interdisciplinary research and collaboration in understanding and shaping the future of these emerging technologies.

Sarah Pink especially stands out in her extensive and prolific dedication to the topic of both emerging technologies, such as artificial intelligence and automated decision-making systems (Pink et al., 2022), and a future-oriented, interventionist anthropology (Pink & Salazar, 2017; Pink, Akama, & Sumartojo, 2018; Lanzeni & Pink, 2021; Lanzeni et al., 2022). Situating her agenda at the intersection of both EmTech and an interventional exploration of possible futures, her work is a notable example of how anthropology can actively contribute to EmTech's development and ethical considerations.

It is also notable for her call to anthropologists to rethink, rework, and reposition their work vis-à-vis questions of how the discipline moves forward. She notes, "We must *become players in the same futures-focused spaces* as other stakeholders in the future of emergent technologies, create new collaborations and bring different, diverse and everyday stories to the center" (Pink, 2022: 11; our emphasis). And while she pursues this agenda through the design anthropological perspective, which she helped to pioneer and champion, in this volume, we have compiled a more diffuse collection of perspectives that borrow on a range of approaches: From design anthropology to speculation to software engineering, all the while pushing forward novel forms of being an anthropologist in and for the world.

We are, of course, aware of the old trope (or, more harshly, critical caricature) of "the anthropologist as hero" working in the gloried exotics (Sontag, 1994 [1963]). But in the lack of a practical alternative suggestion on how to intervene and be active in the world beyond representational efforts, we take a cue from Sarah Pink. We advocate for a proactive and engaged anthropology that immerses itself in the dynamic world of EmTech, forging new collaborations and amplifying diverse and everyday narratives to shape the future of technological development. By positioning anthropologists as active innovators, visionaries, and creators, we can ensure that the discipline remains at the forefront of ethical, inclusive, and responsible innovation, ultimately guiding the trajectory of technology, society, and our discipline.

To accomplish this goal, we delve deeper into how anthropologists turn to the art and science of innovation, examining the methods, practices, and collaborations that have enabled them to make significant contributions to EmTech fields. By giving voice to their successes, challenges, and perspectives for navigating interdisciplinary landscapes at the frontier, we hope to inspire and guide the next generation of anthropologists to build on these foundations.

Finally, it is essential to remember that we often introduce concepts, modes of work, and practical collaborations, which are often viewed as antagonistic to the corporate world. This is especially true of those working in academia. Yet, in this volume, we contend that anthropology has always been an innovative discipline, and anthropologists are often innovators who help to push the boundaries of academia and industry. They just don't realize it. But the time has come for that to change and for us to embody and perform the role of the innovator at the edge of all future frontiers.

Anthropology and the Innovator's Turn

The evolution of anthropology is often mapped out in relation to schools of thought responding to one another and departing, redressing, or even vehemently disagreeing with one another. These "turns," in theory, have often been colored by national schools of thought, especially the US versus Great Britain. The early disciplinary focus on comparing and contrasting civilizational models of culture through cataloging gave way to preoccupations with social structures and organization. That was followed by a focus on meaning, culture, and theories of how society and culture reproduce, as well as a period of coming to grips theoretically and empirically with the profound effects of neoliberal capitalism on global societies.

It is only more recently, however, that anthropology has seen a novel turn in method and practice. For example, as a speculative and intermediary object to think with, interact with, and learn from, the prototype has made a jump from engineering into ethnography (e.g., Marcus, 2014; Corsín Jiménez, 2014; Estalella, 2015; Corsín Jiménez & Estalella, 2017). Speculative anthropology – which investigates the possibilities and potentialities of the kinds of worlds "we could or should inhabit" (Anderson et al., 2018), actively engages

imaginaries and science fiction as a genre (Wolf-Meyer, 2018; Lempert, 2018; Attari et al., 2021). As noted, design anthropology emerged as a distinct "style of knowing" and an intentionally interventional approach that aims to use co-creation and participatory practices to address complex socio-cultural challenges (Otto & Smith, 2013; Miller, 2020; Miller, 2018). Yet, despite these changes, much of anthropology remains steadfast in its commitment to fieldwork, self-reflexivity, critique, and ethical responsibility in speaking truth to power. While these enduring values are relevant, they also pave the way for exploring new frontiers, such as innovation.

Arguably, a replotting of this intellectual landscape of ideas and arguments reveals that in being adaptive, curious, and creative, anthropologists have always been innovators already well before these novel approaches gathered speed in recent years, even when focused on classic scholarly prerogatives rather than interventional ones. Though no single introduction could summarize the many anthropologists whose work qualifies for that label, a few notable examples will illustrate this alternative remapping. The outbreak of World War I forced Bronislaw Malinowski's extended stays in Papua New Guinea and created an opportunity out of the crisis, which largely shaped the way extended fieldwork still looks and is conducted today: An innovation by necessity.

Another example could be Dell Hymes' *Reinventing Anthropology* (1999 [1972]). It brought together several anthropologists who actively explored ways to move beyond the confines of its ongoing disciplinary dogmas at the time. Notably, Laura Nader's essay "Up the Anthropologist" (1972) from that collection catalyzed the shift that led to anthropologists moving away from studying hunter-gatherers and indigenous tribes and considering instead boardrooms and modern organizations as field sites and bona fide anthropological topics: An innovative move which created not only the anthropology *of* organizations but equally paved the grounds for organizational anthropologists in a more applied vein.

Paul Rabinow's *Reflections on Fieldwork in Morocco* (2007 [1974]) offers another trailblazing example in which he wrote about the ethnographic production of knowledge in the highly personal terms we take for granted – and standard – today but which were found to be near-scandalous and dangerous to his academic career at the time.

One general tendency in these non-exhaustive examples of doing something new with and within anthropology has been to move the discipline in schools of thought that incrementally increase anthropological theory through a particular stripe of thinking. Another has been to do so in turns, which marks a radical break from the dominance of such schools of thought. The former is often vested in ideological garbs, often opposed to one another.

As the work featured in this volume will illustrate, working with emerging tech and innovating anthropology from within the EmTech context requires different kinds of methodological and theoretical moves. It requires that EmTech anthropologists are school-of-thought agnostic. Although ideology-aware, they

remain ideology-indifferent. Their work does not necessarily pledge to defend a theoretical canon or respond to a different intellectual camp. Instead, they have the humility to approach problems and challenges flexibly and adaptively, carefully selecting the most suitable theoretical perspectives and methodological approaches for the task.

Anthropologists in this space read what they must, where they must, and how they must, and not from within the familiar comfort of their preferred theoretical and ideological sympathies. This includes literature from business and entrepreneurship, information systems and engineering, and other social and human sciences, to name a few. In remaining non-committal but attuned to the needs of the problem space, they aim to design contextually appropriate solutions.

To be clear, this is not an argument for techno-solutionism, which refers to the belief that technology alone can solve complex social, political, and environmental issues. However, it is an unabashed argument for urgently needed *solutions* to address complex, ill-defined, and difficult-to-solve problems. These types of problems have been called "wicked problems" and have multiplied in recent decades. Reasons for this are numerous, from the scale and scope of technological advancement to the backdrop of the volatile, uncertain, complex, and ambiguous (VUCA) (Barber, 1992) social context that has arisen since the end of the Cold War (Bennis & Nanus, 1985). Increasingly and frighteningly, many of these problems could aptly be defined as existential crises, as noted earlier.

Likewise, we contend that solutions are needed. By this, we mean the proactive pursuit of interdisciplinary, culturally sensitive, and anthropologically attuned approaches to address these multifaceted challenges, leveraging not only technological advancements but also insights from the social sciences, humanities, and other fields to create comprehensive and effective resolutions.

Although we recognize the potential for controversy in using the term solutions given the connotation of solutionism, it is important to acknowledge that a problem without a solution is just that. It's a problem for one or more groups, often those who are disempowered. Though we are well aware that there are equity issues in determining who gets to define what is a problem and what is a solution, we contend that a discipline averse to contributing to the betterment of society is not a discipline at all. And so, we call on anthropologists to act like innovators and work toward shaping these emerging technologies.

To do that, we argue that we need more anthropologists willing to work at the frontiers within industry leadership positions outside the confines of higher education alone. We need these individuals to act now – as early adopters within EmTech – to get in early on developing new technologies as one of the first employees or, ideally, as the founder so that we can play a role in shaping future possibilities. More importantly, we need to do this in successive waves to establish a sustained normalized critical mass of

anthropologists within the field, at each new frontier, as innovators capable of strategically influencing long-term visions and directions of EmTech.

To achieve this, we suggest interested anthropologists learn from the journeys and practices exemplified by the authors in this book. Their stories, detailed in the subsequent chapters, serve as a testament to the profound potential impact of anthropological insight in EmTech and provide a blueprint for future practitioners.

In Chapter 2, Laura Musgrave demonstrates how her work ensures a more responsible AI development. She takes the reader through the many aspects that can and often do make AI intransparent and biased and how, through her direct engagement in shaping conversational AI technology and policy, she can better guide the development of the technology and its attendant processes.

Similarly, Matt Artz picks up the AI conversation in Chapter 3 and shares his journey toward designing a gamified participatory recommender system as a co-founder of an art tech startup. Through his research, Artz discovered that existing recommender systems tend to amplify inequality by favoring creators with more economic, social, and cultural capital. To address this, he designed an alternative model that gives all creators, regardless of their existing access to capital, an opportunity to gain visibility in the recommender system through their participation. Presenting a multidisciplinary and mixed-methods approach, Artz shares how he combined ethnographic research with computational methods to reimagine a transparent and equitable machine learning recommender system model.

In Chapter 4, Lianne Potter lifts the veil on the world of an anthropologist in the cybersecurity sector. She discusses how she has become a cybersecurity professional from a background in photography and anthropology and how, in her work, she advocates for an anthro-centric approach. Drawing on concepts like reciprocity and storytelling, she outlines practical applications of an anthropological lens for understanding security culture, behaviors, and risk.

Melyn McKay, in Chapter 5, draws on theories of value, exchange, and extra-state relations to outline how anthropology can guide the trajectory of blockchain-based products, such as in the payments sector. Noting how anthropological theory has helped her overcome her own biases about cryptocurrencies, her chapter serves as a powerful example of how anthropologists as innovators and early adopters shaping emerging tech like Web3, can direct it toward equitable alternatives that serve excluded communities.

Also working from a founder perspective, in Chapter 6, Lora Koycheva shares why an anthropologist might want to commit to building robots in the hybrid spaces between academia and venturing. She argues for turning the ethnographic imagination into anthropological speculation as a basis for creating emerging hardware. She provokes how anthropological theory can make the jump and inform new, much-needed beyond-human paradigms for climate change mitigation with robots.

Speculation plays a role also in Chapter 7, where Anne Johnson demonstrates how an anthropologist can navigate the boundaries of academia and the space industry. She outlines an engaged anthropology shaping the trajectory of NewSpace in the postcolonial context through her interdisciplinary work "alongside" space engineers and enthusiasts, and she puts the trademark anthropological reflexivity, experimentation, and grassroots inclusion.

Mujtaba Hameed, in Chapter 8, tackles the meaning of "doing good work" as an anthropologist within the consulting sector in a highly polemic field such as genetically engineered food. In discussing his journey, he offers a glimpse into how anthropologists balance their own ethical aspirations for the world while simultaneously delivering value to clients in the consulting sector by deploying classic anthropological methods such as semiotics analysis.

Similarly attuned to ethics is Chapter 9, in which Thomas Scott Hughes takes the reader to the fast-paced innovation cycles of biotech. His work addresses an important nexus between ethics, organizational culture, and DEI policies, and he showcases how his work has contributed to directing a biotech company toward equitable, ethical outcomes.

Finally, to wrap it all up in the concluding chapter, Kate Sieck offers a compelling meditation on the many ways anthropology and EmTech come together and can continue together in the future, challenging us to rethinking our relationships with emerging technologies.

Across these chapters, readers will find many similar themes, such as agency, enactment and problem-solving, persuasion, intervention, reflexivity, engagement, experimentation, iteration, speculation, hybridizing, collaboration, co-creation, and organizational culture, all in the spirit of innovating. These are all required, though not sufficient. To responsibly innovate, we also must acknowledge the practical implications and real-world challenges that arise from our innovation work, and part of that entails acknowledging the equity issues of solutioning emerging socio-technical systems. To that end, we have endeavored to demonstrate the importance of ethics to our future by weaving such discussions into each chapter. Rather than leave ethics for the last chapter, as many books do, we felt it was imperative to situate the ethical challenges in the context of the discussion on emerging technologies.

When taken together, this volume emphasizes the value of studying and incorporating anthropology into EmTech and EmTech into anthropology, demonstrating the significant contributions each field can impart to each other. Furthermore, the volume explores how anthropologists can leverage their unique perspectives to promote more responsible, inclusive, and people-centered technological innovations, enriching the field and its relevance in today's rapidly evolving landscape. By embracing these opportunities, anthropologists can contribute to shaping a future where technology serves the needs and values of diverse societies, ensuring that innovations are developed ethically, sustainably, and with a deep appreciation for the complexities of the human experience.

Anthropologists must embrace emerging tech in ways that are more than just a field site but also a domain for anthropology. Furthermore, they need to contribute to the development of anthropological practice by embracing careers at the fuzzy front end of innovation and incorporating some of these technologies into our methodological practice. By doing so, they can become innovator anthropologists, or even *Anthro-Solutionists*, who combine the strengths of anthropology with business and technology acumen, emphasizing the importance of anthropological perspectives in technology development, ethical considerations, and lasting impact. Through their innovative approach, Anthro-Solutionists contribute to shaping a more ethical, inclusive, and responsible future.

And so, we look forward to your feedback on this volume and hope that you will reach out and engage with all of the authors, but before turning to the chapters, we want to leave you with a radical call to action.

An Anthropological Innovators Manifesto

We believe anthropologists must turn to innovation to address the most pressing challenges and opportunities, especially those presented by EmTech. Likewise, and generously taking inspiration from the Agile Manifesto (Beck et al., 2001), we have put together an anthropological manifesto to help guide this necessary shift.

We value:

Agency over dogma.
Enactment over critique.
Collaboration over confrontation.
Experimentation over orthodoxy.

We commit to:

Hybrid roles spanning industry and academia that create social impact.

Interdisciplinary cross-pollination.

Appreciate businesses and acquire organizational acumen.

Leadership and teamwork.

We pledge to act as innovators shaping emerging technologies toward more ethical, equitable, inclusive, and sustainable futures that serve the needs of diverse global societies.

We vow to intervene at technology's expanding frontiers as innovators creating solutions that combine anthropology's strengths with strategic thinking and action.

We are anthropological innovators.

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