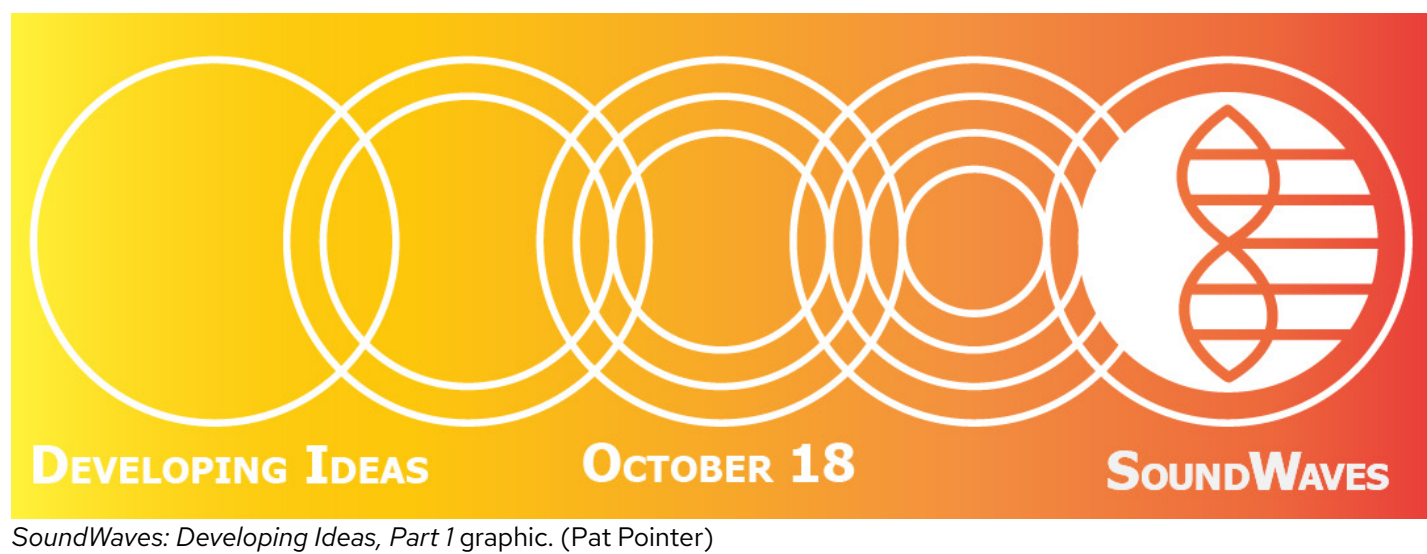# SOUNDWAVES:
DEVELOPING IDEAS, PART 1

Jonas Tangen

SoundWaves: Developing Ideas, Part 1 graphic. (Pat Pointer)

On Friday October 18th the first SoundWaves event of the season was held at the DeLuca Forum in the Discovery Building as part of the Wisconsin Science Festival. This SoundWaves event focused on the concept of Development, bringing it to life through the lenses of literature, plant science, sociology, and computer science. As Dan Grabois, the curator of Soundwaves, welcomed everyone to the event he explained how the night's speakers would dive into the many dimensions of development and its relevance to understanding the modern world. He noted that the event would include a mix of vivid storytelling, groundbreaking science, and thought-provoking insights. From the beginning, SoundWaves: Developing Ideas, Part 1 promised to be an event that blended curiosity and expertise, showing how development shapes not only our understanding of the world but also the world itself. Here's a closer look at the evening's captivating discussions.
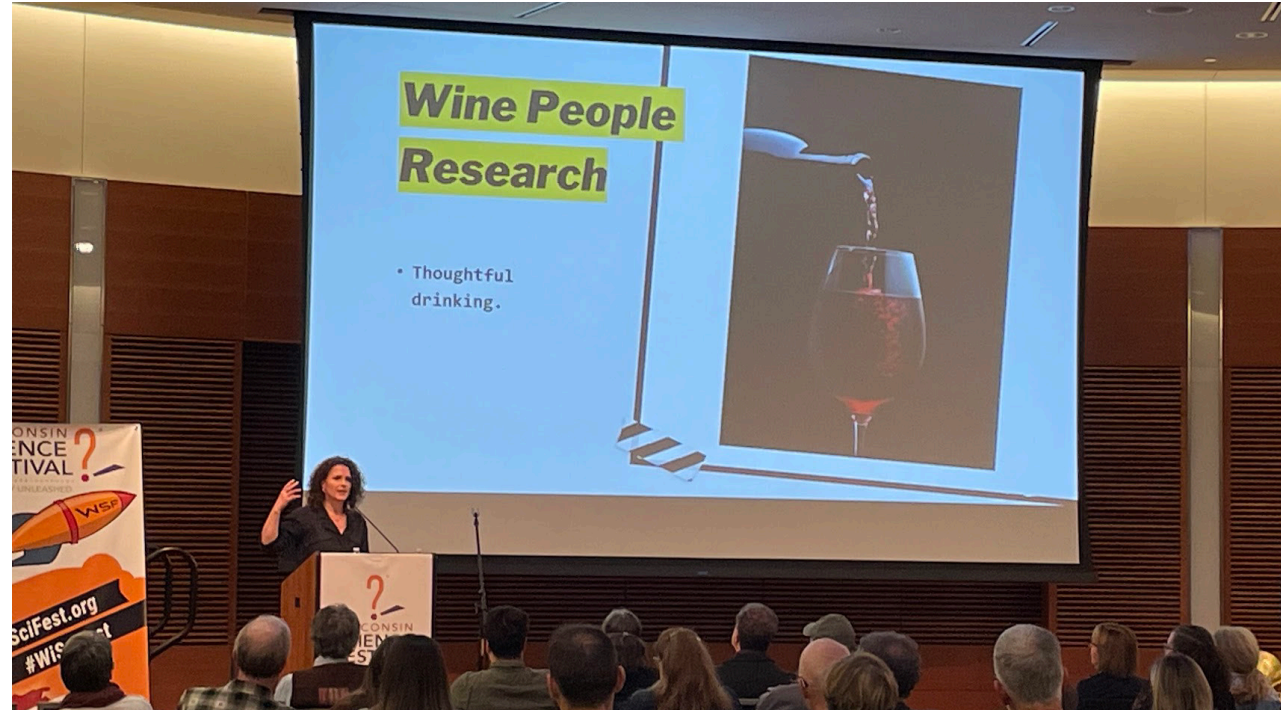
Michelle Wildgen, Wisconsin Institute for Discovery Writer-in-Residence and author of Wine People describes the process that helped develop her nuanced storytelling.

From Research to Story: Development of a Novel

Michelle Wildgen, WID Writer-in-Residence and author of Wine People, opened the evening by exploring how creative development shapes a novel. Wildgen shared that her latest book was inspired by her time immersed in the food and wine industry, where a rich tapestry of characters and dynamics fueled her imagination. She described visiting wineries in California and Italy, participating in wine tastings, and interviewing individuals across the wine business to create authentic, layered portrayals of her fictional world.

One particularly striking example came from Wildgen's account of "Monday morning meetings" at a wine importing company, where personalities clashed, and hierarchies quietly revealed themselves. She explained how these nuances became the foundation for her characters. For instance, Wren, one of the two protagonists, struggles as an outsider striving to prove herself in a refined industry. In contrast, Thessaly, a privileged insider, exudes effortless confidence. This clash—built on decades of observation and conversations—allowed Wildgen to weave a narrative rich with tension and stakes. She also revealed the struggles of writing itself: drafting through self-doubt, wrestling with structure, and finally embracing the joy of revision where "the real magic happens."

William Tracy explains how ancient farmers used selection to develop useful traits in corn.

The Plants Decide or the Creative Power of Selection

William Tracy, a professor in the UW-Madison Department of Plant and Agroecosystem Sciences, brought the science of plant breeding to life, by utilizing maize as a case study in how humans have shaped plant development over millennia. He began by showcasing teosinte, a wild grass with tiny, hard kernels, and traced its transformation into the plump, sweet ears of corn we know today. He explained that ancient farmers selected plants for traits like taste and harvestability over centuries, creating a genetic lineage without ever understanding the molecular mechanisms behind their work.

Tracy then shared an eye-opening experiment from his own career. While working with sweet corn, he aimed to produce a starchy variety—something biochemists claimed was impossible due to the genetic constraints of sweet corn's makeup. Despite skepticism, his team succeeded after just seven generations of selective breeding, defying established biochemical theories. The experiment, he noted, underscored the sheer power of selection as a force of development. He also highlighted the broader implications of his work, stressing that modern plant breeders must anticipate future challenges, such as climate change, to create crops that will thrive in increasingly unpredictable environments. "We're not just developing plants," he concluded, "we're developing the future."


Michael Bell speaks about the development of monotheism.

When Religion went to Town, the Development of Monotheism

Michael Bell, a professor of sociology at UW-Madison, traced the emergence of monotheism as societies transitioned from agrarian villages to powerful urban empires. He explored how early pagan religions, which revered nature and the interconnectedness of life, reflected the needs of rural communities. These belief systems embraced a diversity of gods who were partial, relatable, and often flawed, offering tangible ways to seek favor, such as through sacrifices or rituals.

In contrast, Bell explained, monotheism arose alongside the centralization of power in cities. With this shift, the divine became singular, transcendent, and absolute—ideals that mirrored the hierarchical and patriarchal structures of growing empires. He offered the example of the Hebrew Bible, where the Israelites' transition from polytheistic practices to worshiping a single God paralleled their formation as a centralized state. Bell suggested that monotheism introduced a divine impartiality that justified accumulating wealth and enforcing social hierarchies, while simultaneously marginalizing ecological and communal values. His talk challenged listeners to rethink the role of religion in shaping societal values, asking whether it's possible to blend the ecological wisdom of pagan traditions with the rigor of monotheism to meet modern challenges.
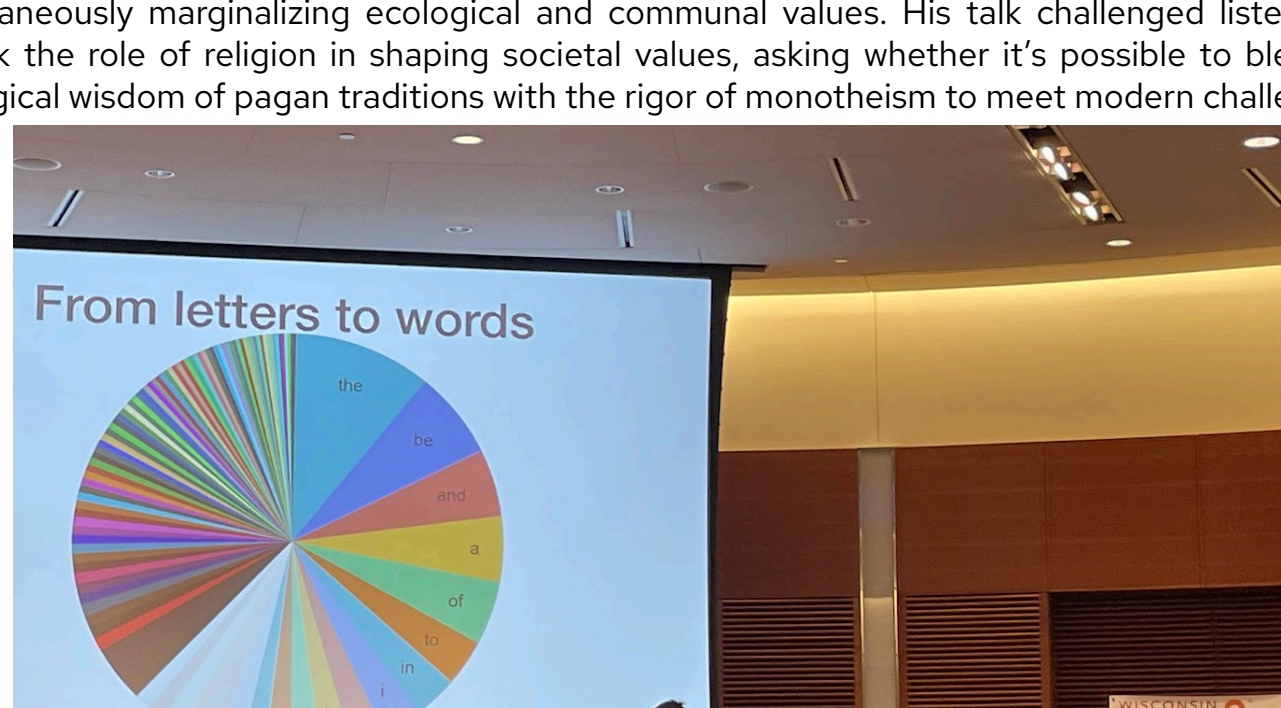

Jerry Zhu illustrates how AI uses randomness to develop words and sentences.

A Fairy Tale About How AI Learned to Write

Jerry Zhu, a professor in computer science at University of Wisconsin-Madison, brought a refreshing mix of humor and depth to the complex topic of artificial intelligence. Using the metaphor of a monkey spinning wheels, he explained how AI generates language by analyzing vast datasets, like all publicly available internet text, to predict word sequences. "Imagine the monkey builds a wheel for every word, every letter, and every sequence," Zhu said, explaining how statistical probabilities guide AI's seemingly human-like responses.

Zhu shared one example where AI could spin its wheels and write Shakespeare. By analyzing word patterns, an AI could generate sentences that mimic Shakespeare's style but lack meaning, like: "Sweet princess forsooth, show thy Harry grave." While amusing, these random sentences also demonstrated AI's lack of true understanding. Zhu contrasted this mechanical randomness with human cognition, inviting the audience to ponder whether human thought is truly unique—or simply a more sophisticated version of the AI's "monkey and wheels" approach. He left the audience with a philosophical question: "How different are we in terms of our cognition, in terms of our thinking? Are we so different than these monkeys?"
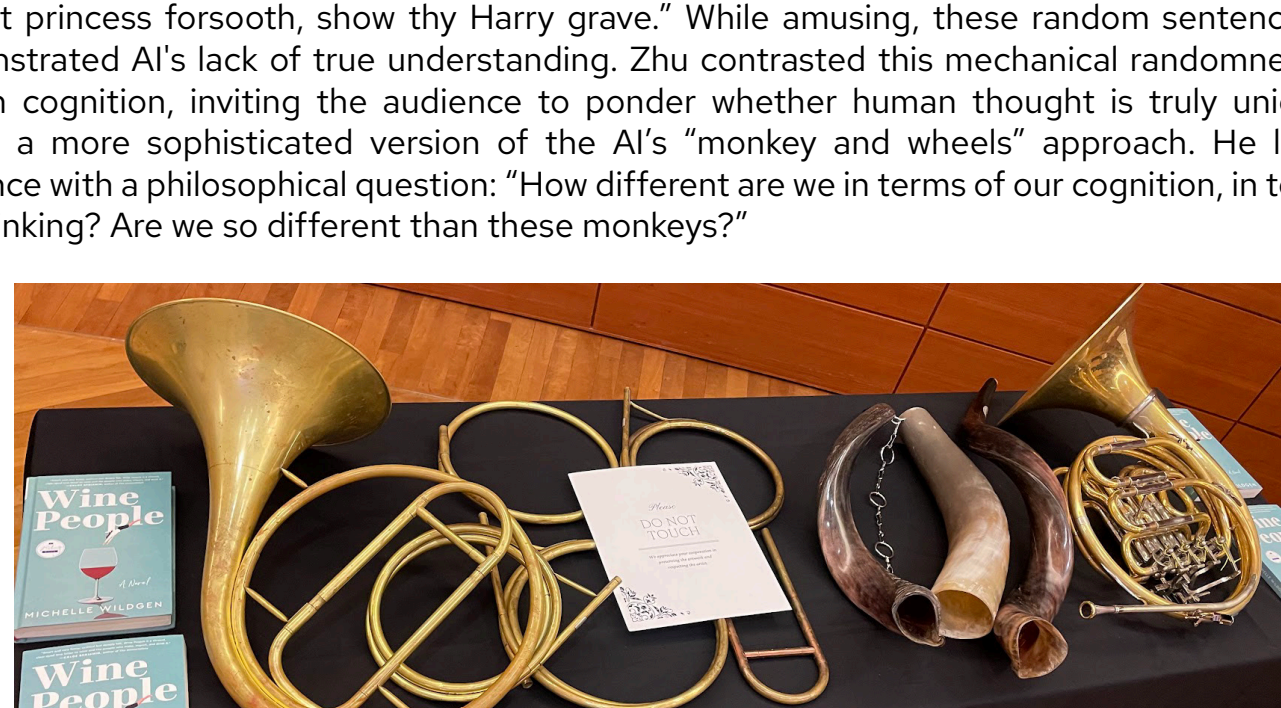
A selection of horns throughout time to illustrate the development of these instruments.

A Journey Through Development

The evening offered a captivating journey through the concept of development, showing how it connects disciplines as disparate as plant science and novel-writing. From ancient farmers shaping the future of food to AI systems reshaping communication, the speakers revealed how development is both an evolving process and a force that shapes humanity itself.

A video recording of the entire event is available online.