**Engaging Science,
Technology,
and Society**

Rethinking Scientific Habitus: Toward a Theory of Embodiment, Institutions, and Stratification of Science

JUNE JEON
UNIVERSITY OF WISCONSIN–MADISON

Abstract

Deep learning techniques are growing in popularity within the field of artificial intelligence (AI). These approaches identify patterns in large scale datasets, and make classifications and predictions, which have been celebrated as more accurate than those of humans. But for a number of reasons, including nonlinear path from inputs to outputs, there is a dearth of theory that can explain why deep learning techniques work so well at pattern detection and prediction. Claims about "superhuman" accuracy and insight, paired with the inability to fully explain how these results are produced, form a discourse about AI that we call enchanted determinism.

To analyze enchanted determinism, we situate it within a broader epistemological diagnosis of modernity: Max Weber's theory of disenchantment. Deep learning occupies an ambiguous position in this framework. On one hand, it represents a complex form of technological calculation and prediction, phenomena Weber associated with disenchantment. On the other hand, both deep learning experts and observers deploy enchanted, magical discourses to describe these systems' uninterpretable mechanisms and counter-intuitive behavior. The combination of predictive accuracy and mysterious or unexplainable properties results in myth- making about deep learning's transcendent, superhuman capacities, especially when it is applied in social settings. We analyze how discourses of magical deep learning produce techno-optimism, drawing on case studies from game-playing, adversarial examples, and attempts to infer sexual orientation from facial images. Enchantment shields the creators of these systems from accountability while its deterministic, calculative power intensifies social processes of classification and control.

Keywords

artificial intelligence; deep learning; enchantment; Max Weber; magic; classification

Rethinking Scientific Habitus: Toward a Theory of Embodiment, Institutions, and Stratification of Science

JUNE JEON

UNIVERSITY OF WISCONSIN–MADISON

Abstract

Deep learning techniques are growing in popularity within the field of artificial intelligence (AI). These approaches identify patterns in large scale datasets, and make classifications and predictions, which have been celebrated as more accurate than those of humans. But for a number of reasons, including nonlinear path from inputs to outputs, there is a dearth of theory that can explain why deep learning techniques work so well at pattern detection and prediction. Claims about "superhuman" accuracy and insight, paired with the inability to fully explain how these results are produced, form a discourse about AI that we call enchanted determinism.

To analyze enchanted determinism, we situate it within a broader epistemological diagnosis of modernity: Max Weber's theory of disenchantment. Deep learning occupies an ambiguous position in this framework. On one hand, it represents a complex form of technological calculation and prediction, phenomena Weber associated with disenchantment. On the other hand, both deep learning experts and observers deploy enchanted, magical discourses to describe these systems' uninterpretable mechanisms and counter-intuitive behavior. The combination of predictive accuracy and mysterious or unexplainable properties results in myth- making about deep learning's transcendent, superhuman capacities, especially when it is applied in social settings. We analyze how discourses of magical deep learning produce techno-optimism, drawing on case studies from game-playing, adversarial examples, and attempts to infer sexual orientation from facial images. Enchantment shields the creators of these systems from accountability while its deterministic, calculative power intensifies social processes of classification and control.

Keywords

artificial intelligence; deep learning; enchantment; Max Weber; magic; classification

Rethinking Scientific Habitus: Toward a Theory of Embodiment, Institutions, and Stratification of Science

JUNE JEON
UNIVERSITY OF WISCONSIN–MADISON

Abstract

Deep learning techniques are growing in popularity within the field of artificial intelligence (AI). These approaches identify patterns in large scale datasets, and make classifications and predictions, which have been celebrated as more accurate than those of humans. But for a number of reasons, including nonlinear path from inputs to outputs, there is a dearth of theory that can explain why deep learning techniques work so well at pattern detection and prediction. Claims about "superhuman" accuracy and insight, paired with the inability to fully explain how these results are produced, form a discourse about AI that we call enchanted determinism.

To analyze enchanted determinism, we situate it within a broader epistemological diagnosis of modernity: Max Weber's theory of disenchantment. Deep learning occupies an ambiguous position in this framework. On one hand, it represents a complex form of technological calculation and prediction, phenomena Weber associated with disenchantment. On the other hand, both deep learning experts and observers deploy enchanted, magical discourses to describe these systems' uninterpretable mechanisms and counter–intuitive behavior. The combination of predictive accuracy and mysterious or unexplainable properties results in myth– making about deep learning's transcendent, superhuman capacities, especially when it is applied in social settings. We analyze how discourses of magical deep learning produce techno–optimism, drawing on case studies from game–playing, adversarial examples, and attempts to infer sexual orientation from facial images. Enchantment shields the creators of these systems from accountability while its deterministic, calculative power intensifies social processes of classification and control.

Keywords

artificial intelligence; deep learning; enchantment; Max Weber; magic; classification

Rethinking Scientific Habitus: Toward a Theory of Embodiment, Institutions, and Stratification of Science

JUNE JEON

UNIVERSITY OF WISCONSIN–MADISON

Abstract

Deep learning techniques are growing in popularity within the field of artificial intelligence (AI). These approaches identify patterns in large scale datasets, and make classifications and predictions, which have been celebrated as more accurate than those of humans. But for a number of reasons, including nonlinear path from inputs to outputs, there is a dearth of theory that can explain why deep learning techniques work so well at pattern detection and prediction. Claims about "superhuman" accuracy and insight, paired with the inability to fully explain how these results are produced, form a discourse about AI that we call enchanted determinism.

To analyze enchanted determinism, we situate it within a broader epistemological diagnosis of modernity: Max Weber's theory of disenchantment. Deep learning occupies an ambiguous position in this framework. On one hand, it represents a complex form of technological calculation and prediction, phenomena Weber associated with disenchantment. On the other hand, both deep learning experts and observers deploy enchanted, magical discourses to describe these systems' uninterpretable mechanisms and counter-intuitive behavior. The combination of predictive accuracy and mysterious or unexplainable properties results in myth- making about deep learning's transcendent, superhuman capacities, especially when it is applied in social settings. We analyze how discourses of magical deep learning produce techno-optimism, drawing on case studies from game-playing, adversarial examples, and attempts to infer sexual orientation from facial images. Enchantment shields the creators of these systems from accountability while its deterministic, calculative power intensifies social processes of classification and control.

Rethinking Scientific Habitus: Toward a Theory of Embodiment, Institutions, and Stratification of Science

JUNE JEON

UNIVERSITY OF WISCONSIN–MADISON

Abstract

Deep learning techniques are growing in popularity within the field of artificial intelligence (AI). These approaches identify patterns in large scale datasets, and make classifications and predictions, which have been celebrated as more accurate than those of humans. But for a number of reasons, including nonlinear path from inputs to outputs, there is a dearth of theory that can explain why deep learning techniques work so well at pattern detection and prediction. Claims about "superhuman" accuracy and insight, paired with the inability to fully explain how these results are produced, form a discourse about AI that we call enchanted determinism.

To analyze enchanted determinism, we situate it within a broader epistemological diagnosis of modernity: Max Weber's theory of disenchantment. Deep learning occupies an ambiguous position in this framework. On one hand, it represents a complex form of technological calculation and prediction, phenomena Weber associated with disenchantment. On the other hand, both deep learning experts and observers deploy enchanted, magical discourses to describe these systems' uninterpretable mechanisms and counter-intuitive behavior. The combination of predictive accuracy and mysterious or unexplainable properties results in myth- making about deep learning's transcendent, superhuman capacities, especially when it is applied in social settings. We analyze how discourses of magical deep learning produce techno-optimism, drawing on case studies from game-playing, adversarial examples, and attempts to infer sexual orientation from facial images. Enchantment shields the creators of these systems from accountability while its deterministic, calculative power intensifies social processes of classification and control.