

## FOREWORD

## Intersection of Creativity, Motivation, Neuroscience, and AI

A futurist raised a question about whether computers can be truly creative or are ‘simply giving the impression of creativity while, in reality, simply following a set of pre-programmed or probabilistic rules’ that modern humans provide (Marr, 2023). This is a legitimate question at the core of the intersection between creativity and artificial intelligence brought to the fore since the launch of generative AI ChatGPT in November 2022.

Traditionally, creativity has been conceptualised as a process, product, personality and press—a condition of the environment (Ogunleye, 2008; Reisman, 2013).

However, focusing on the individuals, Cropley (2020, p.1) defined creativity as an ‘aspect of thinking, as a personality constellation, and as an interaction between thinking, personal properties and motivation’. Irrespective of how it is conceptualised, creativity has continued to intrigue psychologists and neuroscientists.

In recent times, evidence from neuroscience – particularly neuroimaging – has suggested a shift of ‘focus from creative product to creative process’ (Weir, 2024). This shift of focus is raising questions among creativity researchers especially neuroscientists: how do the neural pathways – the connections between neurons in our brains – fire to ignite that spark of creativity or fuel innovation, and how can motivation sustain it?

Indeed, neuroscience has deepened our understanding of the brain’s creative processes—how our brains generate new ideas, and which route results in a creative spark. In other words, how do we use *Type 1 thinking* to generate ideas or *Type 2 thinking* to ‘critique and refine’ these ideas (Weir, 2024) – or how do we use both *Type 1* and *Type 2 thinking* together? How are we inspired by these ideas, and what motivates us to pursue new, uncharted possibilities?

As we advance in our knowledge and understandings of creativity or unlock more of ‘creativity mysteries’, we are back to Marr’s (2023) question about whether computers (AI) can really be creative or can ever truly replicate the nuances of human ingenuity.

The integration of AI into the world of creativity and neuroscience represents a paradigm shift. AI’s role has evolved from a tool for performing tasks to a collaborator in creative and intellectual processes – ChatGPT is a case in point. Yet, as we stand on the brink of a future where machines not only assist but also contribute to creative fields, perhaps we should ask ourselves: what are the ethical, philosophical, and practical implications of this partnership between human and machine? What is the extent to which such partnership motivates or demotivates us to think independently, originally or creatively?

The collection of papers in this volume speak to these issues in different ways – intersection between creativity, motivation, neuroscience, and AI.

A big thank you to Dr Fredrica Reisman for her hard work in editing this book, eleventh in the series, and also to all the authors and co-authors in creating time from their very busy schedules to contribute to the volume.

Enjoy.

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