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PIERPAOLO RUTTICO  
CARLO BELTRACCHI

# Prompted construction

Protocols for a new architectural  
intelligence

preface by Andrea Dari

UNIVERSITÀ

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## Preface

# How is the design process evolving?

“The musical score is the medium that translates thought into music. Tomorrow, will the prompt become the score of architecture?”.

This question accompanies every AEC professional approaching Prompted Construction – Protocols for a New Architectural Intelligence.

In this era that is rapidly becoming “prompt-centric,” architecture once again finds itself questioning its own future. Artificial intelligence – capable of shaping data, language, and matter – no longer knocks at the doors of our studios: it has already thrown open the gates of the construction site, embedding itself both in our collective imagination and our daily operations. Yet, as Pierpaolo Ruttico and Carlo Beltracchi remind us, “The digital ecosystem of architecture and construction is expanding at remarkable speed, yet it still resembles an archipelago of solutions that rarely communicate seamlessly” (Ch. 9, § *Summary: A fragmented but evolving ecosystem*).

This observation captures the starting point of our reflection: an archipelago of tools, practices, and visions that risks remaining fragmented unless we define bridges, protocols, and open formats. *Prompted construction* offers a kind



of nautical chart to navigate and connect these islands, proposing a shared grammar – the grammar of the prompt – that allows professionals, researchers, and businesses to engage in dialogue as fluidly as the neural networks underlying these systems.

The authors identify the prompt as the interface that transforms words into design – laying the groundwork for a new balance between human creativity and machine-generated potential. Fittingly, at the heart of the book echoes Andrej Karpathy’s statement: “We’re entering a new computing paradigm with large language models acting like CPUs... This is the Large Language Model OS (LMOS)” (Ch. 10, § *The prompt as a new design tool*).

It’s a powerful insight: language becomes an operating system, and the designer discovers themselves as a programmer of possibilities, an orchestrator of conversational processes. Just as the transition from analog to digital photography replaced the silver oxidation of film with digital bits – transforming the photograph from a “memory object” into a piece of memoryless data – we are now entering a phase where even image-making no longer requires capturing reality, but merely describing it for AI to render.

This shift brings a profound metamorphosis in the professional role of the architect:

“The architect’s role undergoes a profound redefinition: from crafting individual forms by hand to curating entire ecosystems of prompts, models, and feedback loops” (Ch. 23, § *The architect as a curator of prompts*).

This statement encapsulates the core reason why this book is indispensable: it offers the AEC community a foundational framework to understand – and shape – the evolu-

tion of professional roles. From the Prompt Engineer to the Data Steward, from the Ethical Overseer to the Workflow Integrator, a constellation of new competencies is emerging that we must develop and integrate if we want the human-machine dialogue to produce architecture that is ethical, resilient, and beautiful.

I invite engineers, architects, builders, academics, and policymakers to read these pages as one would consult a book of signs: within, they will find practical best practices, future scenarios, case studies – and most importantly, open questions. What kind of relationship should we establish with learning digital twins? How can we trace data flows without compromising privacy? What standards will allow us to balance interoperability and specialization?

Each chapter sows the seeds of a conversation we can no longer postpone. My hope is that this publication becomes a shared platform for dialogue – across conferences, regulatory forums, university classrooms, design labs, and company workgroups. Only in this way can we transform today's fragmented archipelago into a connected continent, capable of merging artificial intelligence, social responsibility, and construction quality.

With gratitude to the authors and with confidence in our community's critical curiosity, I entrust this preface to the hands of AEC professionals. Let the debate begin – and may our prompt-cities, still in potential, find a real place in the world.

*Andrea Dari*  
Director of Ingenio

## Introduction

# Welcome to the Prompted Era

## Why AI matters for architecture today

We are witnessing a radical paradigm shift – profound, inevitable, and far-reaching. Like many creative and scientific fields, architecture stands at the threshold of a new era: the age of artificial intelligence. Following the computational design revolution of the early 2000s – which transformed geometry, fabrication, and the interaction with design data – we now face an even broader acceleration that redefines the foundations of architectural thinking.

With its generative and predictive capacities, artificial intelligence is reshaping how we conceive, represent, build, and experience architecture. Its impact goes far beyond automation: it introduces a new, distributed design intelligence capable of collaborating, adapting, and even operating autonomously. Natural language becomes a working interface, data turns into design material, and prompts evolve into protocols. Design is shifting from control to conversation, from form to behavior, and from closed projects to open systems.

We cannot ignore or delay this transition. As designers and as citizens, it is our responsibility to consciously embrace this change, to guide it and shape it toward ethical,

sustainable, and human-centered goals. Architecture, as both a cultural and technological discipline, has the opportunity – and the responsibility – to lead this transformation.

Far from diminishing the human role, this new era opens unprecedented and exciting scenarios: a future where human creativity is amplified and enhanced, where the architect is no longer merely a maker of forms but a curator of intelligences. The architect of the future will be an orchestrator of complex systems, a designer of dialogues between humans and machines, a director of new productive ecologies. New challenges will confront the architect and raise new questions, but grounded in body and emotion the architect will always be responsible for bringing the artificial into the real.

This book aims to explore, structure, and give direction to the present. Through a critical mapping of emerging technologies, evolving processes, and shifting roles within architectural practice, we offer a set of conceptual and operational tools to navigate the Prompted Era – an era where design is no longer just an act of individual synthesis but an ecosystem of interconnected intelligences.

It is time to innovate, to write new protocols, to build – with intelligence – a better world.

## Part I

# Understanding the present: how AI is changing architecture

An overview of current digital technologies  
reshaping design and construction



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