



## Invitation to Authors

### ***“Working Through Synthetic Worlds”***

#### **Rationale:**

This book will describe ways that one might exploit the potential of Virtual Environments through the creation of Synthetic Worlds. The proposed book will limit its focus to those forms of virtual worlds that facilitate some form of productive work. In particular, the book will be comprised of a series of essays proposing the use of Synthetic Worlds in specific work contexts. Each chapter will present a vision of how synthetic worlds could change the way work could be done by incorporating one or more synthetic worlds to enable performing a job. Each chapter would then discuss the technological challenges implied by the vision as well as recommended research topics that would facilitate the development of the proposed virtual world(s).

#### **Synopsis:**

Virtual Environments (VE) are human-computer interfaces in which the computer creates a sensory-immersing environment that interactively responds to and is controlled by the behavior of the user. The development of visual, sound, and interaction technologies have made it possible to consider the use of virtual environments for many applications. As of this writing, virtual worlds have been created and are receiving considerable attention for the purposes of Massively Multi-User Online Games (MMOGS) and for social networking, e.g. Second Life™. As these technologies become more reliable, more resolute, and more affordable, it becomes feasible to consider the distinctive advantages that VE's might have (relative to currently popular forms of human-human and human-computer interaction) to support changing the way people do work, as well as the potential implications for business processes. This book will ask researchers with familiarity with the developments in MMOGs and virtual world technology to consider how these technologies could be applied to a specific work application.

Synthetic Worlds refers here to a subset of VE's that have been designed: 1) to facilitate work; and 2) are inherently coherent with each other and the real world.<sup>1</sup> Conceptually, there may be multiple synthetic worlds created that have been optimized to support different tasks associated with the same job. At this writing, the most widespread use of Synthetic Worlds has been related to games like World of Warcraft, and socially constructed virtual worlds like Second Life. The primary motivators for participation in

---

<sup>1</sup> . The core idea behind synthetic worlds refers to the notion that there could be multiple virtual worlds that have been designed to facilitate the solving of different decision-making problems. These worlds must be consistent with each other and the real world data they incorporate, thus making them coherent. Further, because these worlds are intended to be interoperable for an individual doing work, the user interfaces must be consistent with each other.

these virtual worlds appear to be fun and novelty. As the novelty wears off, we expect that Synthetic Worlds will need to demonstrate a favorable value proposition if they are to survive. In particular, non-game-oriented worlds will need to facilitate business processes to a degree that exceeds their substantial costs for development and maintenance.

Synthetic Worlds may be particularly effective in supporting work that requires visualization of objects in three- (or more) dimensions, the way that objects relate to each other in space, and the way that objects and people interact over time. Moreover, Synthetic Worlds afford the ability to share these visualizations among multiple participants who may be distributed in space.

This book, will explore a variety of different tasks that might benefit by being performed within a Synthetic World. We propose to use a distinctive format for the book, consisting of a set of chapters composed of three parts. Each chapter will address a specific work environment. The first part of each chapter will consist of a story or vignette that describes work conducted within one or more Synthetic Worlds which becomes a key enabler in performing the work. The stories will be a visionary vignette that describes what the work could be like 10 to 20 years from now with the synthetic world as an integral part of the work environment. These stories will be based on the authors' expectations of plausible future technologies.

The second part of each chapter will consist of a scholarly discussion of the technologies described or implied by the stories, as well as relevant theory and technological development relevant to or implied by the vision. In particular, those aspects of the stories having some empirical support will be differentiated from other aspects of the stories that are derived from supposition or speculation, and therefore require research and development to bring to fruition.

The final part of each chapter will be a prescription for future research required to bridge the current state-of-the-art with the notional worlds described in the stories, and would facilitate the development of a science for using virtual worlds to enable work.

We anticipate several chapters may be offered that address pervasive architectural and technical requirements implied by the concept of working through synthetic worlds.

**Candidate sections include but are not limited to (Note: Each section will comprise one or more chapters):**

1. Business
2. Law enforcement/criminal investigations
3. Financial Analysis
4. Intelligence Community
  - a. Training and Rehearsal
  - b. Analysis

- c. Exploitation
- 5. Training (outside the Intelligence Community)
- 6. Department of Defense
  - a. C4I
- 7. First Responders
- 8. Crisis Management
- 9. Security/Monitoring
- 10. Medical
- 11. Social Experimentations

**Expected Delivery Date:** Spring 2009

**Instructions:**

If you are interested in contributing a chapter to this book, please submit the following information to [Cap.Smith@mail.biz.colostate.edu](mailto:Cap.Smith@mail.biz.colostate.edu) by March 31, 2008:

- Chapter Title
- Author/Organization
- Abstract (1-2 paragraphs)