

# The New York Times

## Computer Stories: A.I. Is Beginning to Assist Novelists

By David Streitfeld

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BERKELEY, Calif. — [Robin Sloan](#) has a collaborator on his new novel: a computer.

The idea that a novelist is someone struggling alone in a room, equipped with nothing more than determination and inspiration, could soon be obsolete. Mr. Sloan is writing his book with the help of **home-brewed** software that finishes his sentences with the push of a tab key.

It's probably too early to add "novelist" to the long list of jobs that artificial intelligence will eliminate. But if you watch Mr. Sloan at work, it is quickly clear that programming is on the verge of redefining creativity.

Mr. Sloan, who won acclaim for his debut, "Mr. Penumbra's 24-Hour Bookstore," composes by writing **snippets** of text, which he sends to himself as messages and then works over into longer passages. His new novel, which is still untitled, is set in a near-future California where nature is **resurgent**. The other day, the writer made this note: "The bison are back. Herds 50 miles long."

In his cluttered man-cave of an office in an industrial park here, he is now expanding this slender notion. He writes: *The bison are gathered around the canyon.* ... What comes next? He hits tab. The computer makes a noise like "pock," analyzes the last few sentences, and adds the phrase "by the bare sky."

Mr. Sloan likes it. "That's kind of fantastic," he said. "Would I have written 'bare sky' by myself? Maybe, maybe not."

He moves on: *The bison have been traveling for two years back and forth.* ... Tab, pock. The computer suggests *between the main range of the city*.

"That wasn't what I was thinking at all, but it's interesting," the writer said. "The lovely language just **pops out** and I go, 'Yes.' "

His software is not labeled anything as grand as artificial intelligence. It's machine learning, facilitating and extending his own words, his own imagination. At one level, it merely helps him do what **fledgling** writers have always done — immerse themselves in the works of those they want to emulate. Hunter Thompson, for instance, **strived** to write in the style of F. Scott Fitzgerald, so he retyped "The Great Gatsby" several times as a shortcut to that objective.

Writers are readers, after all. "I have read some uncounted number of books and words over the years that all went into my brain and **stewed together** in unknown and unpredictable ways, and then certain things come out," Mr. Sloan said. "The output can't be anything but a function of the input."

But the input can be pushed in certain directions. A quarter-century ago, an electronic surveillance consultant named Scott French used a supercharged Mac to imitate Jacqueline Susann's sex-drenched tales. His approach was different from Mr. Sloan's. Mr. French wrote thousands of computer-coded rules suggesting how certain character types derived from Ms. Susann's works might plausibly interact.

It took Mr. French and his Mac eight years to finish the tale — he reckoned he could have done it by himself in one. "Just This Once" was commercially published, a significant achievement in itself, although it did not join Ms. Susann's "Valley of the Dolls" on the best-seller list.

A **tinkerer** and experimenter, Mr. Sloan started down the road of computer-assisted creation driven by little more than “basic, nerdy curiosity.” Many others have been experimenting with fiction that pushes in the direction of A.I.

Botnik Studios used a predictive text program [to generate four pages](#) of rather wild Harry Potter fan fiction, which featured lines like these: “He saw Harry and immediately began to eat Hermione’s family.” On a more serious level, the Alibaba Group, the Chinese e-commerce company, said in January that its software for the first time [outperformed humans on a global reading comprehension test](#). If the machines can read, then they can write.

Mr. Sloan wanted to see for himself. He acquired from the Internet Archive a database of texts: issues of *Galaxy* and *If*, two popular science fiction magazines in the 1950s and ’60s. After trial and error, the program came up with a sentence that impressed him: “The slow-sweeping tug moved across the emerald harbor.”

“It was a line that made you say, ‘Tell me more,’” Mr. Sloan said.

Those original magazines were too limiting, however, full of clichés and stereotypes. So Mr. Sloan augmented the **pool** with what he calls “The California Corpus,” which includes the digital text of novels by John Steinbeck, Dashiell Hammett, Joan Didion, Philip K. Dick and others; Johnny Cash’s poems; Silicon Valley oral histories; old *Wired* articles; the California Department of Fish and Wildlife’s *Fish Bulletin*; and more. “It’s growing and changing all the time,” he said.

Unlike Mr. French a quarter-century ago, Mr. Sloan probably will not use his computer collaborator as a selling point for the finished book. He’s restricting the A.I. writing in the novel to an A.I. computer that is a significant character, which means the majority of the story will be his own inspiration. But while he has no **urge** to commercialize the software, he is intrigued by the possibilities. Megasellers like John Grisham and Stephen King could relatively easily market programs that used their many published works to assist fans in producing authorized imitations.

As for the more distant prospects, another San Francisco Bay Area science fiction writer long ago anticipated a time when novelists would turn over the composing to computerized “wordmills.” In Fritz Leiber’s “The Silver Eggheads,” published in 1961, the human “novelists” spend their time polishing the machines and their reputations. When they try to rebel and crush the wordmills, they find they have forgotten how to write.

Mr. Sloan has finished his paragraph:

“The bison were lined up fifty miles long, not in the cool sunlight, gathered around the canyon by the bare sky. They had been traveling for two years, back and forth between the main range of the city. They ring the outermost suburbs, grunting and muttering, and are briefly an annoyance, before returning to the beginning again, a loop that had been destroyed and was now reconstituted.”

“I like it, but it’s still primitive,” the writer said. “What’s coming next is going to make this look like crystal radio kits from a century ago.”

## **II. Reading Comprehension**

**/20**

**I. Answer the following questions on the text with your own words (DO NOT QUOTE FROM THE TEXT):**

**/5**

1. Present and define the document.

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2. Explain how AI writing works for Robin Sloan.

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3. Explain how Scott French's writing system worked.

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4. How and why did Robin Sloan modify the system invented by Botnik Studios?

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5. What perspective does Robin Sloan imagine for AI writing in the future?

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**II. Say if the following statements are true or false and justify your answer by quoting from the text.**

**/5**

1. The software used by Robin Sloan is not truly A.I.

T/F: \_\_\_\_\_

Quote : \_\_\_\_\_

2. Some authors may want to ban the reproduction of their works by A.I. systems.

T/F: \_\_\_\_\_

Line numbers : \_\_\_\_\_

Quote : \_\_\_\_\_

3. Our traditional vision of the writer is immutable.

T/F: \_\_\_\_\_

Line numbers : \_\_\_\_\_

Quote : \_\_\_\_\_

4. Writers always want to create their own style regardless of their predecessors.

T/F: \_\_\_\_\_

Line numbers : \_\_\_\_\_

Quote : \_\_\_\_\_

5. Alibaba Group's software is still behind humans for reading comprehension.

T/F: \_\_\_\_\_

Line numbers : \_\_\_\_\_

Quote : \_\_\_\_\_

**III. Using your own words, explain what the following excerpts mean:**

**/5**

1. "programming is on the verge of redefining creativity"

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2. "who won acclaim for his debut"

\_\_\_\_\_

3. "as a shortcut to that objective."

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4. “The output can’t be anything but a function of the input.”