



Christina T. Roupas
+1 312 881 6670
croupas@cooley.com

Via EDGAR

December 15, 2023

U.S. Securities and Exchange Commission
Division of Corporation Finance
Office of Technology
100 F Street, N.E.
Washington, D.C. 20549

Attention: Jan Woo, Legal Branch Chief
Kyle Wiley, Staff Attorney
Robert Littlepage, Accounting Branch Chief
Claire DeLabar, Senior Staff Accountant

**Re: Tempus AI, Inc.
Draft Registration Statement on Form S-1
Submitted November 13, 2023
CIK: 0001717115**

Ladies and Gentlemen:

On behalf of Tempus AI, Inc. (the "*Company*"), we are providing this letter in response to comments (the "*Comments*") received from the staff of the U.S. Securities and Exchange Commission's Division of Corporation Finance (the "*Staff*") by letter dated November 21, 2023 with respect to the Company's Amendment No. 8 to the Draft Registration Statement on Form S-1, as confidentially submitted to the Staff on November 13, 2023 (as amended from time to time, the "*Draft Registration Statement*"). The Company is concurrently and confidentially submitting Amendment No. 9 to the Draft Registration Statement on Form S-1 (the "*Amended Draft Registration Statement*"), which includes changes that reflect the responses to the Comments as well as certain other updates to the Draft Registration Statement.

Set forth below are the Company's responses to the Comments. The numbering of the paragraphs below corresponds to the numbering of the Comments, which for your convenience we have incorporated into this response letter in italics. Page references in the text of the Company's responses correspond to the page numbers of the Amended Draft Registration Statement. Capitalized terms used in this letter but not otherwise defined in this letter have the meanings assigned to them in the Amended Draft Registration Statement.

Business, page 143

- 1. We note that your proprietary software employs AI techniques such as neural networks, deep learning, and other statistical techniques. Please explain how you developed and validated your artificial intelligence ("AI") model. In the explanation, please include the data quality and robustness of the relationship predicted by the model over time, the experience of the personnel that developed the model, when the model was developed, and how long the model has been used in a clinical setting.*

Cooley LLP 110 N. Wacker Drive Suite 4200 Chicago, IL 60606-1511
t: (312) 881-6500- f: (312) 881-6598 cooley.com

In response to the Staff's Comment, the Company has revised the disclosure on pages 145, 146 and 147 of the Amended Draft Registration Statement to explain how the Company developed and validated its AI model.

AI Applications, page 164

2. *We note that as your AI Applications product gains adoption, you intend to leverage large language models and generative AI algorithms. Please disclose whether you intend to develop proprietary technology, utilize open-source technology, or license the use of such technology. To the extent you intend to license existing or future technologies or plan to utilize open-source technology, please also consider revising the relevant risk disclosure to address any related risks.*

In response to the Staff's Comment, the Company has revised page 166 of the Amended Draft Registration statement to disclose the Company's intent to develop proprietary technology and its use of open-source or licensed third-party technologies. The Company has also revised the risk factors on pages 37, 38, 39, 78 and 79 to address the risks associated with the use of open-source or licensed third-party technologies.

General

3. *Given the nature of your business, please consider including definitions of "AI," "generative AI," "deep learning," "large language models," "neural networks," and any other industry-specific terminology.*

In response to the Staff's Comment, the Company has revised page 38 of the Amended Draft Registration Statement to include definitions of "AI," "Machine Learning," "Generative AI," "Large Language Models" and "Neural Networks."

* * *

Please contact me at (312) 881-6670 with any questions or further comments regarding our responses to the Staff's Comments.

Sincerely,

/s/ Christina T. Roupas

Christina T. Roupas

cc: Eric Lefkofsky, *Tempus AI, Inc.*
Jim Rogers, *Tempus AI, Inc.*
Erik Phelps, *Tempus AI, Inc.*
Ryan Bartolucci, *Tempus AI, Inc.*
Eric Jensen, *Cooley LLP*
Courtney Tygesson, *Cooley LLP*

Cooley LLP 110 N. Wacker Drive Suite 4200 Chicago, IL 60606-1511
t: (312) 881-6500- f: (312) 881-6598 cooley.com