UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,
Petitioner,

v.

CALIFORNIA INSTITUTE OF TECHNOLOGY,
Patent Owner.

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Case IPR2017-00210
Patent 7,116,710

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**DECLARATION OF BRENDAN FREY, PH.D.
REGARDING U.S. PATENT NO. 7,116,710
CLAIMS 1-8, 11-17, 19-22, AND 24-33**
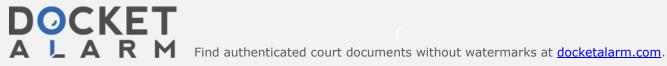
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Apple 1065

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I, Brendan Frey, Ph.D., declare as follows:

1.   My name is Brendan Frey.

I.   BACKGROUND

2.   I received a B.Sc. with Honors in Electrical Engineering from the University of Calgary in 1990, a M.Sc. in Electrical and Computer Engineering from the University of Manitoba in 1993, and a Ph.D. in Electrical and Computer Engineering from the University of Toronto in 1997.

3.   Since July 2001, I have been at the University of Toronto, where I am a Professor of Electrical and Computer Engineering and Computer Science.

4.   During my career I have conducted research in the areas of graphical models, error-correcting coding, machine learning, genome biology, medicine, and computer vision.

5.   In 2015, I co-founded Deep Genomics Inc., a startup located in Toronto that is using artificial intelligence to find new medicines. Since then I have acted as its Chief Executive Officer. Deep Genomics has received over $17M in venture capital funding, mostly from Silicon Valley investors. Deep Genomics has recruited scientists and engineers from top universities, including MIT, Stanford, the University of California, San Diego, and the University of Toronto, and from

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competing biotech and software companies, including Amazon, Autodesk, Calico and Human Longevity. In 2017, I co-founded the Vector Institute for Artificial Intelligence. The Vector Institute is internationally regarded as one of, if not the, top artificial intelligence research institutes in the world. It has over $200M in funding and its current and newly hired professors have chosen faculty positions at the Vector Institute in preference to faculty offers from leading universities, including Stanford and MIT, and to senior researcher offers from leading industrial labs, including DeepMind, Google, Facebook, Microsoft and OpenAI.

6.   I have received a number of honors and awards for the research I have conducted. In 2008, I was named a Fellow of the Institute for Electrical and Electronic Engineers (IEEE), an honor given to a person with an "extraordinary record or accomplishments" in the field of electrical engineering. In 2009, I was named a Fellow of the American Association for the Advancement of Science (AAAS), an honor that recognizes "efforts on behalf of the advancement of science or its applications which are scientifically or socially distinguished." In 2009, I was awarded a Steacie Fellowship for my work on the theory and implementation of artificial and natural mechanisms for inferring patterns from data. The Steacie Fellowship is awarded by the Natural Sciences and Engineering Research Council of Canada (NSERC) to "outstanding and highly promising scientists and engineers"

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