An official website of the United States Government.

PUBLIC SUBMISSION

Comments Submitted by Gregory Aharonian

Posted by the **Patent and Trademark Office** on Sep 7, 2021

View More Comments 62 (/document/PTO-P-2021-0032-0002/comment)

View Related Comments 145 (/docket/PTO-P-2021-0032/comments)

Share

Comment

I comment with regards to the issue of patent eligibility and quantum computing (Section I.3.a and II.12.a). I attach a paper, "Quantum Computing Patents/Investments Are Worthless to their Inventors/Investors". The fundamental argument is that the transaction timing/cost, and ease of workarounds, of quantum computing is such that nationally-enforceable quantum computing patents are almost impossible to enforce in the global transnational economy, where cloud servers made it impossible to enforce patents on software running on clouds (such as quantum computing algorithms). When quantum computing hardware becomes practical, it will be too easy to use patented quantum computing technologies outside the country where the patent was issued (most of which are in the US, the technology of which is easily moved to offshore servers, even for hardware). Thus, to some extent, it does not matter how patent eligible a quantum computing invention may be, if when it issues, it is unenforceable. Great inventions for end users, lousy returns for the inventors and their investors. The USPTO should inform all patent applicants, that if they are seeking patent claims based on methods running on a server, there is a high probability that their issued patent will be unenforceable (something their lawyers rarely discuss).

Specific to the issue of patent eligibility and quantum computing, is the problem of the semantics of quantum physics, and one of its applications, quantum computing. Most of the major terms of quantum physics: 'wavefunction', 'particle', 'system', 'time', 'set' and more, have no clear definition in standard physics semantics. The term 'particle' alone has 7 significant potential definitions. 'set', the most important term underlying physics and mathematics, has no definition other than the circular "A set is a collection of ..., where a collection is a group of ..., where a group is a set of ...". This doesn't matter much when doing calculations ("The Copenhagen school of 'shut up and calculate'"), but it pretty much makes claim construction impossible during patent litigation, and allows a patent examiner to correctly issue 112 rejections because of the lack of definition of terms. There are currently at least four schools of thought as to what is the semantics of quantum physics: the Copenhagens, the QBists, the Bohmians and the 't Hooftians, each with a different definition of 'measurement'. So if a quantum computing patent application uses the term 'measurement', the examiner rightly should 112-reject until a definition is provided. But which? And sadly, few patent lawyers are competent in the intricate semantics of quantum physics (the

USPTO needs a separate bar exam for patent lawyers who want to practice in fields such as AI and quantum computing). Few of these patents will survive scrutiny in court during litigation, if the defendant's lawyers hire quantum physicists as experts.

An offer is made in the paper: for $20 million, an insurance policy can be created to insure the entire world against all existing and future quantum computing patents. That means that all such patents, together, are worth no more than $20 million. Since more has/will be spent on acquiring such patents, all such patents, even if all patent eligible, are worthless. Take any quantum software method patent. Move it to an offshore server. Do the calculations. Send the results back to the US. Thanks to the ClearConnect decision of the CAFC, there is no infringement.

The attached paper offers no solutions (other than instituting a global patent, and requiring patent lawyers to be technically competent in the subject matter of the patent). Rather, the paper uses quantum computing as a technology that clearly breaks the patent system at multiple points, as will future technologies, and reiterates the need for Constitutional analysis of the terms of 101/103/112.

In particular, the complex semantics of quantum computing requires, at least, that the semantics of 101/103/112 not be complex. Yet to this date, 101/103/112, the caselaw and MPEP, completely fail Due Process Public Notice requirements of the Constitution. Things are so bad that Justice Thomas was able to brag about NOT defining 'abstract' in Alice. If the patent statutes and MPEP satisfied Due Process, there would be few 101 rejections, because there would be a clear definition of 'abstract' that lawyers could use to draft non-abstract claims, in particular, non-abstract quantum computing claims. And to date, the USPTO has not written any memos on applying Due Process Public Notice to MPEP.

Impose Due Process Public Notice Requirements on statutes and MPEP, seek a global patent, and require patent lawyers to be technically competent.

Attachments 1

QuantumComputingPatents-GregAharonian-July2021

Download (https://downloads.regulations.gov/PTO-P-2021-0032-0023/attachment_1.pdf)

Comment ID

PTO-P-2021-0032-0023

Tracking Number

kro-awiz-l6d4

Comment Details | Submitter Info

Document Subtype

Comment(s)

Received Date

Jul 27, 2021

Page Count

1

Your Voice in Federal Decision Making

About (/about) Agencies (/agencies) Learn (/learn)

Reports (https://resources.regulations.gov/public/component/main?main=Reports) FAQ (/faq)

Privacy & Security Notice (/privacy-notice) | User Notice (/user-notice) | Accessibility Statement (/accessibility) | Developers (https://open.gsa.gov/api/regulationsgov/)

Support (/support) Provide Site Feedback