

# The Barack Obama Long Form Birth Certificate

## A Response to Mara Zebest

Mara Zebest uses Adobe Photoshop.

She uses it very well. She has helped write books about how to use it. She is without any serious doubt an **expert** on how to use it. And there is little doubt that if someone wanted to create a document in Photoshop, then Mara Zebest is your “go to girl.”

Mara Zebest has also now written a “report” on the alleged forgery of Barack Obama’s long form birth certificate<sup>1</sup>. And that would probably be a very interesting thing were it not for one simple fact. ***The document she is “analyzing” was not created in Adobe Photoshop.***

As such, her analysis is a little like asking a neurosurgeon’s opinion on endocrinology. I am confident that any decent neurosurgeon could write up a superficially passable report on, say, the “adrenal insufficiency” of a particular patient. There will undoubtedly be a certain appearance of competence, a shared vocabulary if nothing else. But would a neurosurgeon be considered an **expert** on the suite of adrenal disorders that might explain that insufficiency?

Frankly, no. A neurosurgeon is just **not** an endocrinologist.

And Mara Zebest is **not** an forensic digital image analyst.

Rather than offering a point by point rebuttal of her 12 page tome, let’s instead talk about the actual hypothesis she has assembled for the “forgery” of this PDF. The details are just details unless they support a particular theory of history. And what is most clear from reading her analysis (and that of her fellow travelers) is that their theory of history is absurd.

She begins by building a weighty case that frankly does not even need to be built; that the PDF was “**digitally altered** and compiled<sup>2</sup>” (emphasis hers). This point is in fact the single and most central conclusion she draws in her entire analysis. So let’s get this one out of the way out of the gate.

She is correct.

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<sup>1</sup> Zebest, Mara, 2011. *Barack Obama: Long Form Birth Certificate*.

<sup>2</sup> Zebest, P2



It is absolutely and completely conceded by everyone that has spent any effort debunking the “Birther” claims of forgery that the PDF **has been** digitally altered and compiled. The features of this particular PDF have never been explainable in any other way, and no debunker has denied that obvious fact. Returning to the medical analogy, Zebest has identified an “adrenal insufficiency.” But now comes the **real** work; diagnosing the adrenal **disorder** that caused it.

There is absolutely evidence of **digital alteration**. But there is no evidence of **forgery**.

At the most fundamental level, the simple act of scanning **is digital alteration**. A three dimensional paper document is, through a combination of hardware and software, recreated in the form of a digital copy. Such a copy is not a “forgery” since it fairly and accurately represents the original in all significant details. There will always be some differences, minor and major, between the digital image and the material original. And in this way, the document is digitally altered, but it is **not** forged.

Zebest’s challenge is not to demonstrate “digital alterations” that are already fully conceded by “Birthers” and “Obots” alike, but to make a compelling case that the alterations **are the result of forgery** rather than ordinary digital processes. Forgery demands that the alterations be the result of **deliberate** action by one or more **human** beings with the **intention** to materially deceive.

Zebest not only fails that challenge, she inexplicably **fails** to even notice the overwhelming evidence that the digital alterations in this PDF are the result of **automatic** actions by **computer algorithms**. They have no “intention” at all, but are simply following preprogrammed procedures for taking a paper document and sharing it over the Internet. This is evidence that **would** never have escaped the consideration of a **genuine** forensic digital document examiner. And it **should** never have escaped the consideration of a digital author with the experience of Mara Zebest.

### ***The Two Competing Hypotheses:***

There are only two general ways the PDF can have come to possess the features it does. It is either a composite document, created by somebody or something combining parts of multiple other original files, **or** it was originally a single document that was deconstructed by somebody or something into its several current “components.” The first option implies deliberate forgery, and so is the preferred conclusion of those who wish to declare the President ineligible. The second is fairly neutral on the issue of forgery, but is the preferred conclusion of those wishing to debunk the “Birther” claims.

Zebest is of the opinion that the PDF is the product of forgery, and her analysis depends upon having already reached that conclusion. With that as the starting point her report is primarily an exercise in technical “anomaly mining.” When “anomalies” are found, she seeks to “explain them” within the presumed framework of a forgery. With the exception of a single straw man (which will be discussed later) she makes no effort to suggest alternative explanations.

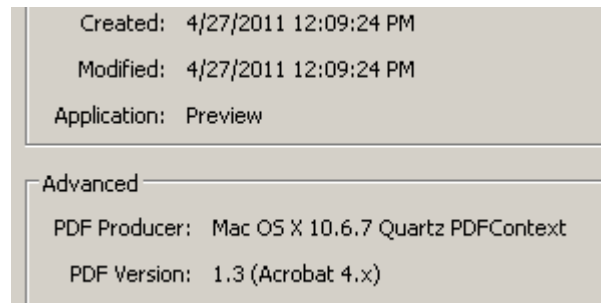
The competing hypothesis that I am proposing is that all the features she considers “anomalous” are actually the ordinary and expected results of the scanning and optimization process that an ordinary paper document underwent in its preparation for publishing on the web. In fact, I intend to make as compelling a case as possible that the pattern of these features comprehensively rules out explanation by a human forger, and renders the conclusion of the PDF being a composite document patently absurd.

So we must begin with the software used to create the PDF itself.

### ***To Shop or Not To Shop:***

Zebest writes, “I believe the certificate image was compiled and created in Photoshop.”<sup>3</sup> This is an interesting assertion, given that the software that created the PDF is not actually a function of belief but one of easily ascertainable fact. Right clicking on any PDF (in Microsoft Windows) will reveal the “Document Properties” to include the software used to create the file. Here are those properties from the Obama birth certificate:

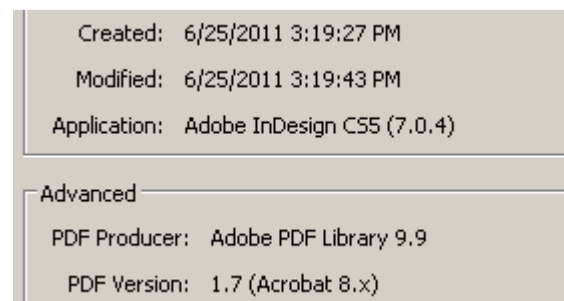
As can be quickly seen, no Adobe product was used to create this PDF. The application used was “Preview”; the basic graphics application made by Apple that has come bundled with all Macs since OS X (the current Mac operating system) was introduced in 2001. In newer versions of OS X such as the one used here (Mac OS X 10.6.7) you can simply attach a scanner to any USB port and “Preview” will work as the scanner controller without having to install any extra software and/or drivers.



“Quartz PDFContent” is a component of the Mac OS itself that provides a broad suite of graphics functionality that Macs use system-wide for a number of different tasks to include printing to a file and optimizing a file for eventual publication to the Internet. In other words, the document properties of the Obama PDF not only ***fail to show any use of an Adobe product***, but provide ***the complete suite of software components necessary*** to scan a document from paper to PDF. Nothing else is required.

As an instructive aside, we can use the same process to take a look at the report issued by Zebest, also a PDF.

As we can see, Zebest assembled her report using Adobe InDesign CS5, a desktop publishing tool. Adobe PDF Library was used to create the actual PDF file that she went on to publish. The use of Adobe products is explicitly and readily ascertainable in Zebest’s document... but completely absent from Obama’s.



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<sup>3</sup> Zebest, P7

## Going to the Source(s)

“Birther” analysts often fail to account for a critical and important part of the discussion regarding the authenticity of Obama’s birth certificate. That is the simple fact that the digital image released by the Whitehouse has a companion document in the form of the paper certificate itself.

That such a paper certificate (in fact **two** certificates) exists is already conclusively attested by the Hawaii Director of Health, and by reporters who attended the release press conference. The actual certified and sealed paper copies were circulated, handled by and (in at least one instance) even photographed by journalists on the scene.<sup>4</sup>

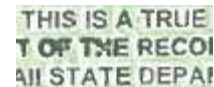
Additionally, second generation black and white photocopies were handed out to journalists in attendance as part of their press packets and at least one of those was obtained, scanned to a JPEG and published by a well-known “Birther” website, TheObamaFile.com.<sup>5</sup>

Referring back to our competing hypotheses, either the paper document was printed from the PDF, or the PDF is an electronic scan of the paper document. Because it is important to remember that the PDF is considered by all “Birther” analysts of which I am aware to be the **actual** forged document and not a scan of a paper document at all.

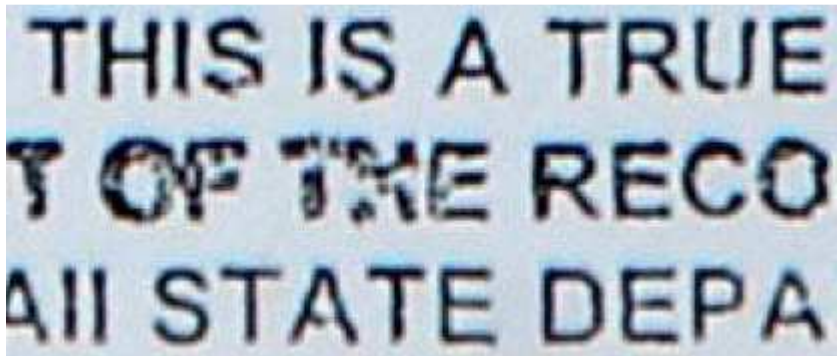
Can we draw some conclusions regarding which of these two hypotheses best fits the evidence at hand? The answer is yes, and key to that discussion is provided by an unlikely source; the scanned JPEG version of the black and white handout provided by the Birther’s themselves.

The PDF released by the Whitehouse is not a particularly high resolution image. When presented onscreen it is 1276 X 1652 pixels in size. In contrast the black and white scan available from TheObamaFile is 4047 X 4851, a much larger file. But not merely larger, it is a much higher resolution image. Let’s look for example at the controversial “misspelling” found in the Registrar’s Stamp.

Here is the direct screen capture of the Whitehouse PDF with no resizing.



Here is the equivalent screen capture of the “Birther” scan, also with no resizing. I will merely note in passing that it debunks the claim that the stamp is misspelled, but that is a conversation for elsewhere



<sup>4</sup> [http://www.msnbc.msn.com/id/42779923/ns/politics-white\\_house/](http://www.msnbc.msn.com/id/42779923/ns/politics-white_house/)

<sup>5</sup> [http://www.theobamafile.com/\\_images/BirthCertificateHighResolution.jpg](http://www.theobamafile.com/_images/BirthCertificateHighResolution.jpg)

The best comparison is made when the PDF is resized to something approaching that native size of the “Birther” scan.



The Whitehouse PDF is a much **lower** resolution than the “Birther” scan. Its pixels are fewer and larger, and thus lose significant detail that must have be present on the paper document since it was picked up by the separate “Birther” scan. It is essentially **impossible** for the “Birther” scan to be of a document printed from the PDF. You cannot digitally go from a lower to higher resolution and retain let alone **improve** detail (a point made indirectly by Zebest herself in her own report<sup>6</sup>). If the PDF was printed as a paper version, that print would retain the lesser detail of the PDF, and this is not what we see.

The high resolution “Birther” scan proves beyond doubt that the paper copies of the Obama birth certificate that were handed out at the press conference are not printed versions of the PDF as they possess too much detail and clarity. On the other hand, the scanning of a paper document will often produce a less detailed, lower resolution digital version... especially if that image is deliberately optimized for publication on-line.

This poses a problem for Zebest’s scenario. High resolution paper documents exist which must have an original source in either a paper original, or in a digital document **that is not the PDF**. For Zebest to be correct, the identical document must have been forged two different times... once to produce the high resolution paper documents and a second time to produce the low resolution PDF.

And what sense does that make?

The competing explanation is that the PDF is a scan of the paper document whatever its original source. Occam’s razor (and common sense) would suggest the latter. Fortunately, there is other evidence that independently drives to the same conclusion.

### ***How Do Forgers Forge?***

Nearly every “Birther” analyst asserts that the PDF is a composite document created by copying parts of other documents into a forged whole. The process of forgery is surprisingly well represented on any number of websites such as “How to Make a Fake ID.”<sup>7</sup> It is (as you would expect) an incremental process in which different components are created and then added to a predesigned template, in this case a standard circa 1961 Hawaiian birth certificate.

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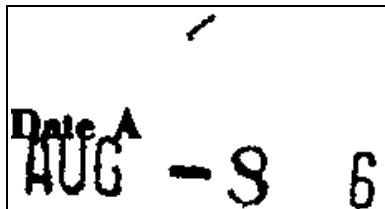
<sup>6</sup> Zebest, P7

<sup>7</sup> <http://www.wikihow.com/Make-a-Fake-ID>

Importantly, key components are assembled separately *before* porting to the target document. The template (form) is created first. Then text is created and added. Then graphical elements (such as photos or signatures) are created and added. The document is then printed on some appropriate medium, and finally, physical features such as embossing or magnetic strips complete the forgery.

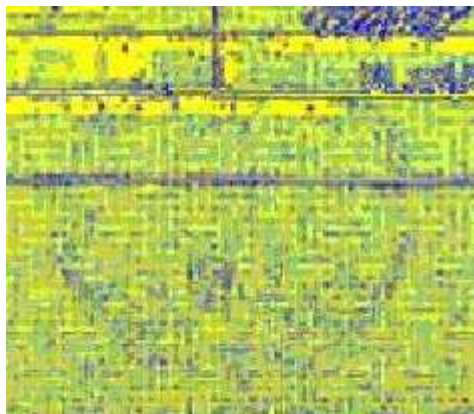
The Obama PDF on the other hand shows *a completely different* “assembly” process... if you can call it a process at all. Rather than (for example) a template object, separate signature objects and separate date stamp objects (as would be expected from a typical forgery) the Obama PDF shows no rational rhyme or reason to the components. The object that contains the “template” also contains *parts of* the signatures and date stamps. Almost all of the typed and printed text is contained in its own object, but *some of it* is also contained in the template object, while (inexplicably) three letters out of a single four letter word are in *their own separate object*.

Refer back to the two competing hypotheses.



If Zebest is correct, some forger created a base layer containing the security paper pattern, the form, *some* typed text, *some* printed text, *parts of* signatures and *parts of* stamps. They then created another layer containing most (*but not all*) of the printed text, most (*but not all*) of the typed text, *parts of* signatures and *parts of* stamps. They then went on to create five other layers at least one of which contains *part of* a stamp, *part of* the printed text and *a single stroke* from a handwritten date (image left).

Next, they went on to create two layers that seem meaningless and contain only random jots and squiggles, the smaller of which looks like this (image right). The forgery hypothesis requires that such a layer be deliberate and purposefully created. I consider myself a fairly creative persona, but I admit to complete failure in trying to come up with a reasonable purpose for it.



And finally, an almost invisible distortion was added to the full color JPEG background precisely where an actual embossed stamp would also be placed on the paper document circulated at the press conference. This effects is so subtle that many if not most “Birthers” refuse to acknowledge that it is there at all, even though is readily visible when the certificate is color enhanced. It would be a brilliant detail if added by a real forger, but completely incongruent with the other bizarre and incomprehensible choices in the assembly of this document.<sup>8</sup>

<sup>8</sup> It must be observed, that this detail is not just one that Zebest missed, she asserted on page 6 of her report that no seal was present at all. It is the sort of miss for which a *genuine* expert in graphical image analysis could not be fairly forgiven.

***On the other hand if I am correct***, there was **no** human forger creating these inexplicable components and then assembling them. Instead there was a computer algorithm or algorithms that took an original ordinary document and then ***separated*** it into component parts. Such an algorithm would be completely unintelligent, unable to recognize the significance of unitary components such as “a signature” or “a date stamp.” And there is an obvious and prosaic candidate for just such an algorithm and why it would have been used in the creation of this PDF.

These are compression algorithms used to optimize large files for publishing on the Internet.

### ***The Stupidity of Compression Algorithms***

In computer science, “compression” is the process of making a large file smaller so that it will use fewer valuable resources such as disk space, bandwidth or loading time on a web page. For some information, the compression can afford to be “lossy” or to lose some information that does not significantly impact the use of the data. This is most often true with video, audio or image files since computers are capable of storing far more detail than a human being can physically perceive, making its storage superfluous. The creation of methods for compressing data has long been a vibrant and creative field in the computer sciences, as the trade-off between detail and performance can make or break the usability of an information system or software product.

Without writing a primer on image compression, every single digital “anomaly” identified on this PDF is readily and directly explained by the same single hypothesis; data compression. In order to provide a smaller file for transmission over the Internet, the Quartz component of the Mac OS ran a series of algorithms designed to first reduce the number of colors in the file (separating out several as monochrome bitmasks) and then to store those bitmasks in objects no bigger than needed to cover the small part of the image on which they would be visible.

But those algorithms are not intelligent. It is a truism of the computer sciences that computers do not do what you **want** them to do, they do what you **tell** them to do. Compression algorithms are written to accomplish a simple and singular purpose, and once written they will do what they are told even if, from a human perspective, it makes no sense whatsoever.

They might be able to tell a black pixel from a dark gray one. They might be able to tell when four adjacent pixels are close enough in color to combine into a single pixel taking up much less storage space. They might be able to tell when a particular pattern of pixels are similar enough to be stored once and replicated many times.

But they cannot tell a typed letter from a check box from a signature, or a senseless hen scratch from a Shakespearean sonnet.

The objects in the Obama PDF directly reflect a mindless process of ***separation*** rather than a thoughtful process of human ***assembly***. No **human** forger would assemble a single signature from three different parts, but an automatic **computer** algorithm would split a signature into three parts in a heartbeat. No

**human** forger would create two objects filled with meaningless scribble that are ultimately invisible on the published image, but an automatic **computer** algorithm couldn't know better

Zebest herself comes close to noticing the irrationality of the pattern in the PDF but is constrained by her prejudgment from grasping the implications. She notes for example that, "It also seems apparent that typed text characters were altered whenever signatures overlapped or bumped against typed text characters." Now... **why** would a human forger need to do such a thing? If they were adding components in overlapping layers, what difference would it make if a signature and typed text appeared to touch? Why would there be a "need" to "alter" the characters that do in a way different from those that don't? These are questions Zebest never thinks to ask.

On the other hand, an automatic computer algorithm would not even be able to understand that there were "different things touching." It would instead consider the touching "things" to be a single thing and keep them together in the same object. And this is **exactly** what we see in the PDF. Where signatures and typed text touch each other, they end up in the same object... 100% of the time. And it is the fact that they end up in the same layer that accounts for the "alterations" seen on the PDF.

### ***Zebest's Straw Man: OCR***

Early on when non-"Birthers" first encountered the argument that the long form was a forgery because it contained "layers," they did what people usually do when confronted with a problem; they brainstormed. And the issue with which they were confronted was, "What ordinary software process might explain the creation of layers from a scanned document?"

As they ran through their mental checklists, most knowledgeable folks observed, even if only in passing, that Optical Character Recognition would be one such process that could account for such an effect. But it also became quickly clear that even though true, OCR was **not** an explanation for the layers in this particular PDF. There were other explanations that were more compelling and better fit the facts; optimization for the web being one of them.

OCR is however the only counter argument that Zebest makes any effort to refute, and she does so quickly and effectively. Unfortunately, the OCR argument is a straw man that was discarded early on by most non-"Birthers."

### ***Expertise Creep***

What is perhaps the most obvious demonstration of Zebest's prejudgment is her inability to resist (as other "Birther" analysts before her have been unable to resist) offering her opinions on subjects she cannot even pretend to have expertise regarding. Were they original observations of her own, they might be forgivable as simple over enthusiasm. That they instead reflect well known and long debunked "Birther" arguments show that she has allowed herself a long immersion in the "Birther" movement independent of any purely technical or professional interest. She wrote her analysis not because she is an Adobe expert, but because she is a "Birther."

What authoritative opinion does "an Adobe expert" bring to a discussion of how race was recorded in 1961 in Hawaii, or their numbering sequence for birth certificates? And most egregious is her discussion of the security paper on which certified document copies are printed; a set of comments as oblivious as



they are pointless. A report filed by a legitimate technical expert would be expected to confine itself to the details relevant to that expertise. Resorting again to the medical analogy, this is worse than a neurosurgeon pretending to be an endocrinologist. It is equivalent to a neurosurgeon pretending to be an endocrinologist, and on the side offering suggestions on how to hunt buffalo.

It is not simply that Zebest is speaking outside her competence and that she is wrong. It is that she is wrong *in the same* direction every time. Her bias is a systematic one, and clearly driven by allegiance to a particular ideology rather than any reflection of truth. It exposes her report as agenda driven propaganda rather than a sober and trustworthy technical analysis.

## **Conclusion**

Mara Zebest is correct; the Obama PDF *has* been “digitally altered.”

But she is not correct that it is a forgery. It is instead an ordinary PDF created by scanning an ordinary document and optimizing it for the Internet. This process *does* “digitally alter” the document, but it does not *change* it. It does not turn truth into fiction; it does not change the meaning of words or move Honolulu to the coast of Kenya. And most importantly, it does not make the original document from which it was copied and “altered” suddenly disappear.

The only *genuine* expert in digital image analysis that has publicly commented on the Obama PDF had an important and sensible observation as a preface to his discussion. Dr. Neil Krawetz observed that:

“[D]igital document analysis can detect manipulation, but it cannot determine whether the original subject is authentic. The authenticity can only be determined by the State of Hawaii, and they already said that it is authentic.”<sup>9</sup>

On June 13, 2008 then candidate Barack Obama released his sealed and certified Hawaiian birth certificate to the press and public. On April 27, 2011 he did so again, this time releasing his long form version. Both documents have been attested to by the government of the State of Hawaii as authentic, as proving that he was born in the United States of America. With those acts, he has provided more proof of his natural born citizenship than any other president or presidential candidate in all of American history.

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She uses it very well. She has helped write books about how to use it. She is without any serious doubt an *expert* on how to use it.

I still suspect that the State of Hawaii knows a little better whether or not the birth certificate is authentic than she does.

And they have said that it is.<sup>10</sup>

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<sup>9</sup> <http://www.hackerfactor.com/blog/index.php?archives/428-After-Birth.html>

<sup>10</sup> <http://hawaii.gov/gov/newsroom/press-releases/hawaii-health-department-grants-president-obamas-request-for-certified-copies-of-long-form-birth-certificate>

Frank Arduini grew up in Los Angeles, CA, where his parents cultivated his life-long love of *gnocchi al forno*.

He knows the difference between being a software developer and a software power user.

He has done a lot of really neat stuff, much of which is directly relevant to this subject. But since he does not consider an “argument from authority” to matter for much, he prefers to allow his arguments and reasoning to stand on their own merits rather than because he helped somebody else write books.