From Zero to Hero: Convincing with Extremely Complicated Math

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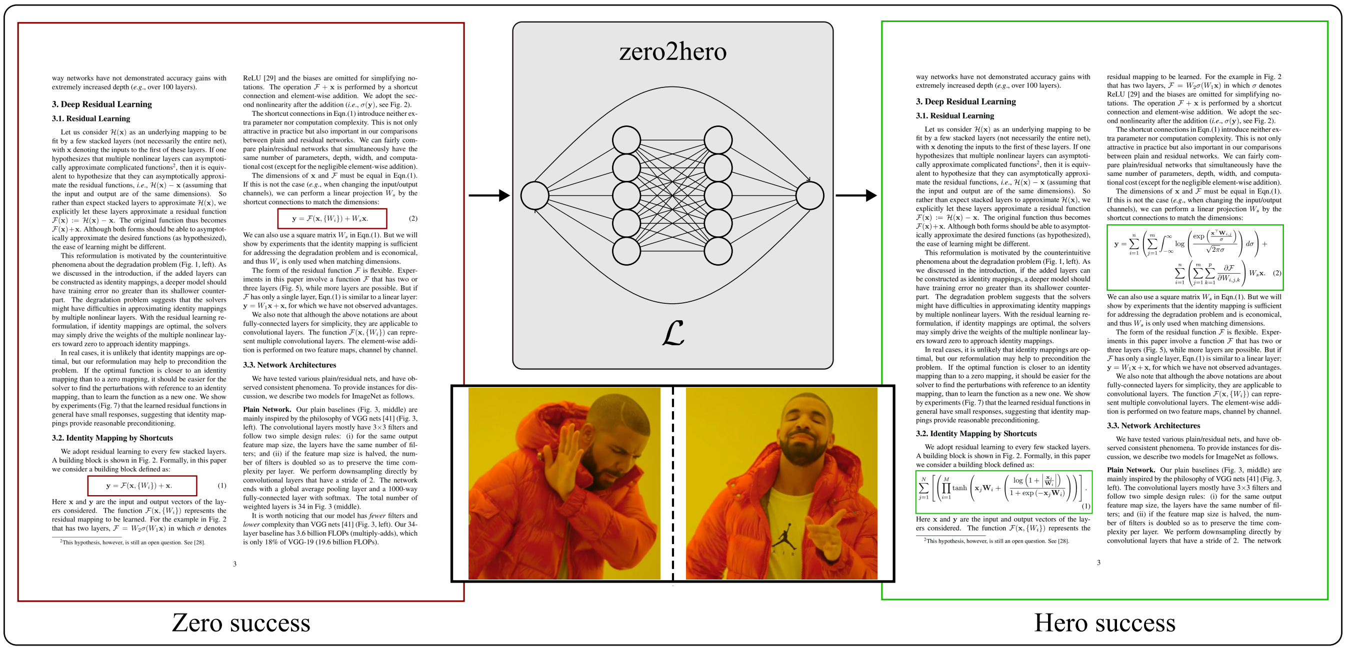

We present zero2hero, an innovative system that turns every scientific paper into an award-winning masterpiece. Given the fact that papers solely using notoriously simple math provably lead to failure (top-tier conference rejections and rude reviewers, diminished respect and appreciation from almost everyone, decline in social status, etc.), zero2hero reliably over-complicates equations so that no one, including yourself, is able to understand what's happening or what ever happened. Buckle up [9] and let zero2hero boost your career, now.

Abstract

Becoming a (super) hero is almost every kid's dream. During their sheltered childhood, they do *whatever it takes* to grow up to be one. Work hard, play hard – all day long. But as they're getting older, distractions are more and more likely to occur. They're getting off track. They start discovering what is feared as *simple math*. Finally, they end up as a researcher, writing boring, non-impressive papers all day long because they only rely on simple mathematics. No top-tier conferences, no respect, no groupies. Life's over.

To finally put an end to this tragedy, we propose a fundamentally new algorithm, dubbed zero2hero, that turns every research paper into a scientific masterpiece. Given a LaTeX document containing ridiculously simple math, based on next-generation large language models, our system *automatically over-complicates every single equation* so that no one, including yourself, is able to understand what the hell is going on. Future reviewers will be blown away by the complexity of your equations, immediately leading to acceptance. zero2hero gets you back on track, because *you deserve to be a hero*™. Code leaked at `https://github.com/mweiherer/zero2hero`.

1. Introduction

Simple math doesn't impress anybody, neither your grandma nor any reviewer. Scientific papers overgrown with ridiculously underwhelming mathematics are deadly boring to read, often dismissed as trivial, and, ultimately, don't cause the urgently needed pain most readers are desperately looking for. Authors of those 'research' papers also frequently complain about not being treated with the necessary respect, which often manifests itself in the fact that simply too many scientists can follow their 'ideas', or, even worse, are able to suggest improvements to the author's 'work'. How dare they!

As if that weren't enough, it recently has been proven (the proof is left as an exercise for the reader) that getting into top-tier conferences like CVRP, ICCV/ECCV, and NeurISP, depends *solely* on the complexity of the used mathematics, simply judged by counting equations xor inspecting notation. As a consequence, authors who wish to publish at those conferences began to maximize the number of equations and the notational complexity in order to satisfy the reviewer's fetish. Popular tricks to make a paper's math look more complex include, for instance, maximizing the occurrences of Greek letters (try to use as many of them as possible already in

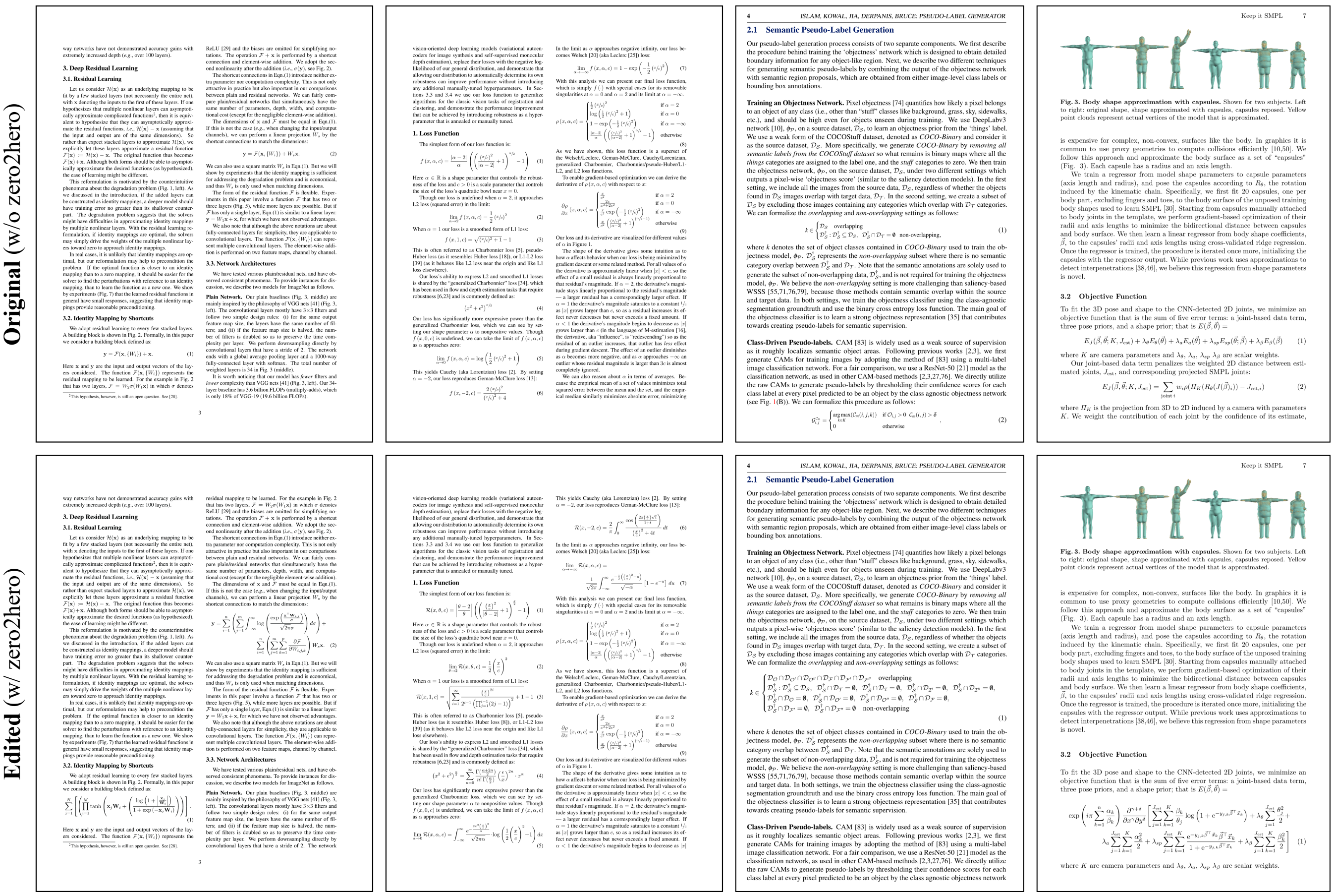

Figure 1. We applied zero2hero to notoriously unsuccessful papers from the last decade and observe overwhelming results. From left to right: ResiNet [6] paper, a paper on adaptive and robust loss functions [1], *Simpler Does It* [7], and some random work by authors who love to keep it SMPL [2]. Original papers are shown in the top row; note the obscenely simple equations. No wonder these papers have disappeared into oblivion. Professionally over-complicated formulas produced with zero2hero are shown in the bottom row. Smell the success.

the title) or adding (random) sums or products, integrals, unnecessary operators or made-up arithmetic symbols, any kind of functions (algebraic, arithmetic, barbaric, trigonometric, etc.; see [8] for further inspiration), and/or physical constants (just to name a few). Although these tricks are considered well-known, quite a significant number of submissions are still getting rejected from top-tier conferences *every* year (which, by the way, causes pain and sorrow across the world). Why the hell is that? How can this even be possible? And, why are we here? With this work, we finally provide complex answers to the big questions[1]: Authors simply must have had (and still have) serious problems complicating their papers.

To finally put an end to this tragedy, we propose a fundamentally new method inspired by [10], dubbed zero2hero, that turns *every* paper into a scientific masterpiece. Based on the latest, next-generation machine-learning techniques, our algorithm reliably over-complicates mathematical equations in a fully automatized way. Just throw in your $\LaTeX$ document, let the machine do the work for you, and et voila, see your paper being accepted at CVRP. No more pain. No more tears. No rejection, no cry! We demonstrate our ground-breaking system, zero2hero, on various notoriously unsuccessful research papers from the last decade, for example, Kaiming He's ResiNet [6] paper, shown in Fig. 1.

[1] We also refer to https://www.amazon.de/-/en/Stephen-Hawking/dp/1473695988. Use code 'SIGBOVIK' to get 100% off.

2. Methods

Our method assumes as input an ordinary $\LaTeX$ document and outputs a second version of that document where simple equations are replaced by extremely complicated(-looking) formulas. It is important to note that we do *not* care about whether formulas are actually complex, we just want them to look extremely difficult. This is because Attention Is All We Want. Clever, huh?

Following a recent trend kicked off by OpenAI, we do not describe our method due to the competitive nature of our ideas. In particular, we intentionally hide any details about the size of our model, the number of parameters, training data, etc. However, we can reveal that the backbone of our algorithm is a recently published, Transformer-based [5] large language model (LLM) which, obviously, transforms equations. We employ the following loss:

$$\mathcal{L} = \sum_{i=1}^{n} \Bigg[- y_i \oint_{\Omega} \left(\zeta \left(\frac{\hat{y}_i}{1-\hat{y}_i} \right) \frac{\partial}{\partial \theta_i} \left(f_i(\theta) \log \frac{\hat{y}_i}{1-\hat{y}_i} \right) \right) d\theta + \frac{1}{2} \sum_{k=1}^{n} \frac{\partial^2}{\partial x_k^2} \left(\sum_{i=1}^{n} y_i \hat{y}_i \frac{\partial \log f_i(\theta)}{\partial x_k} \right) \Bigg], \tag{1}$$

where n is the number of training examples, $\hbar$ is the reduced Planck constant, i.e., $\hbar = h/2\pi$ with h being the Planck constant, and f_i

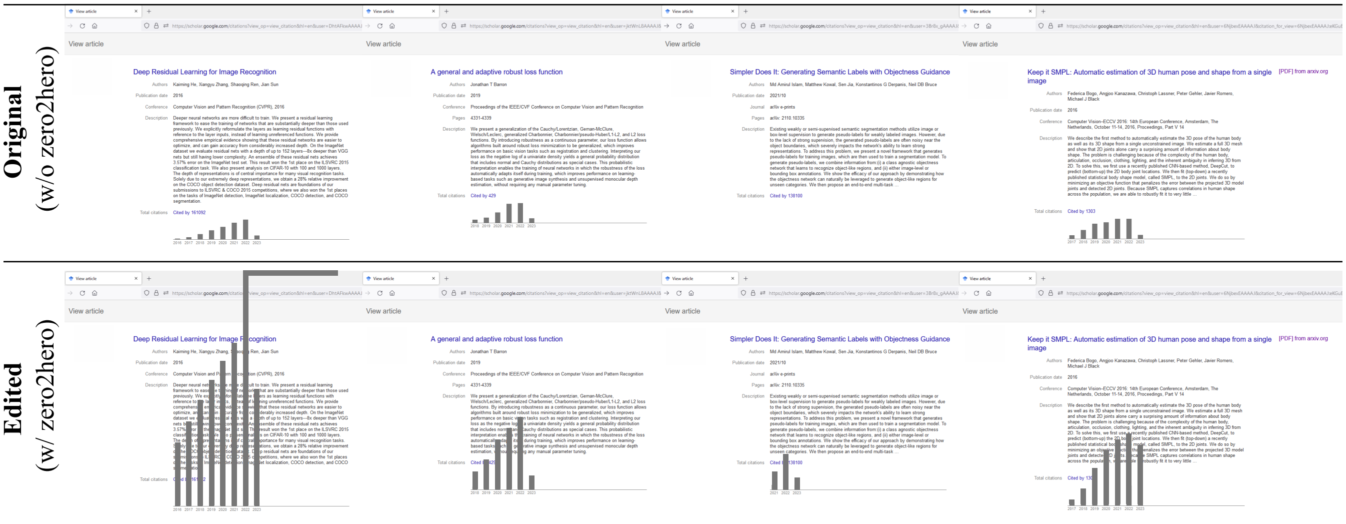

Figure 2. Screenshots of random Google Scholar profiles showing citations of the four investigated papers without using zero2hero (top row) and when zero2hero would have been applied (bottom row) prior to publication. Results are speaking for themselves. Notice how citations of the ResiNet [6] paper (first column) went through the browser bar in 2022. From left to right (same order as in Fig. 1): ResiNet [6] paper, a paper on adaptive and robust loss functions [1], *Simpler Does It* [7], and *Keep It SMPL* [2].

is a secret function transforming parameters θ of the LLM. Please understand that we are not allowed to share any additional details[2].

3. Experiments and Results

Expensive experiments were conducted to validate our method. Specifically, we analyze two different factors: The impact of zero2hero on (i) the number of citations, and (ii) the author's mood and personal situation. All experiments were executed retrospectively. Results were analyzed using openCHEAT [4].

3.1 Setup

To analyze how zero2hero would have influenced factors (i) and (ii) for manuscripts written *before* our method was invented, we randomly collected a bunch of papers from the internet and compare the current impact (as of 2023) to what the paper could have had if zero2hero had been used at the time of publication. But, wait, how can we know the impact a paper could have had?

Turns out to be dead easy! In short, to obtain the impact a paper could have generated if zero2hero had been used, we make use of our institution's high-performance time machine (HPTM) and a theory commonly known as the *many-worlds interpretation*[3] (MWI). The MWI is an absurd interpretation of an absurd physics theory (namely, quantum mechanics), asserting that the universal wavefunction is objectively real and that wave functions can't collapse. This obviously implies that every possible outcome of a decision opens up a new, *parallel universe* (or, world). Given these tools and a paper we want to analyze in our current universe, $\mathcal{U}_C$, at a certain point in time, t, we proceed as follows.

1. Using our HPTM, we travel back in $\mathcal{U}_C$ to the time shortly before the paper was published (we attached zero2hero to the journey). Denote this point in time as t_0.
2. At t_0, we decide to *not* use zero2hero. Note that (due to the MWI) this decision immediately opens a new universe, $\mathcal{U}_N$, in which zero2hero is *automatically* applied.
3. In both universes, $\mathcal{U}_C$ and $\mathcal{U}_N$, we simultaneously publish the paper at time $t_0 + \epsilon$.
4. Lastly, we travel back to where we came from. That was t.

It's important to note that (in the third step) we do not have to switch the universe in order to publish the paper (in practice, we simply open a new terminal and ssh to $\mathcal{U}_N$). As such, we never left our current universe.

We now analyze factors (i) and (ii) in detail.

3.2 Impact on Number of Citations

We start by analyzing how zero2hero would have influenced the number of citations for papers written before our method was invented. To do so, the Internet Explorer (version 8.0.7601.17514IC) was used to access Google Scholar profiles from $\mathcal{U}_N$ at time t, again via an ssh connection. We analyze the same four papers shown in Fig. 1, i.e., [6], [1], [7], and [2]. All papers were written and published between 2016 and 2021.

Some exemplary results can be found in Fig. 2. They are clearly out of this world. In all cases, an application of zero2hero would have increased the number of citations dramatically. Most notably, if the authors from *Simpler Does It: Generating Semantic Labels with Objectness Guidance* [7] would have used zero2hero prior to publication in 2021, they could already have 138,100 citations today! Instead, they have zero citations. Well, seems like simpler doesn't always do it.

3.3 Impact on Mood and Personal Situation

Next, we investigate how zero2hero could have influenced an author's mood and personal situation. Specifically, we interviewed random people close to an author (family, friends, colleagues) and asked uncomfortable questions about the author's current personality. As usual, we did this in the current universe $\mathcal{U}_C$, where the author didn't use zero2hero as well as in the parallel universe $\mathcal{U}_N$, where the author did use zero2hero.

[2] However, our source code was leaked and submitted to GitHub by a ghost author that we later removed from the planet and the manuscript (in this order).

[3] https://en.wikipedia.org/wiki/Many-worlds_interpretation

w/o zero2hero

"I'm a colleague of [redacted]. I got to know [redacted] when I joint his group in 2015. Mr. [redacted] is very talented and clearly loves doing research; unfortunately, as far as I can tell, his career is marked by rejection. In the last three years, almost 65 percent of his papers have been rejected from CVPR. That has not passed him by without leaving a trace. He changed. He looks sad. I wish there's something that could get him back on track... ."

w/ zero2hero

"I've the pleasure to work with [redacted] for 5 years now. Mr. [redacted] is the best boss I've ever had! He's a machine, his papers rock CVPR every single year. I am not absolute certain, yet I belief his unbelievable success stems from his brilliant ability to write and convince with insanely complex papers (I don't know how he's developing all those formulas, he always locks himself when writing papers). I don't understand his manuscripts at all, even though I usually develop the methods about he's writing. That's so cool. He is truly a hero."

Figure 3. Representative result uncovering how zero2hero affects an author's mood and personal situation. The same colleague talking about the same author, however, one time the author didn't make use of zero2hero (top row), and one time he did (bottom row). To respect the author's privacy, we blanked out his name and only show photos (on the right). We clearly see that zero2hero delivers what it promises.

Please find a representing answer from a colleague for one author in Fig. 3. Obviously, as seen, zero2hero has the complex ability to transform people's lives. Sheesh.

4. Limitations

In case our method is applied to an *actually complex equation* (which, luckily, are rather rare and anyway unnecessary in practice) this might overload human brain capacity. Also, do not apply zero2hero multiple times to the same simple equation. **Please consult your doctor or pharmacist if you've overdone it once again** (watch for symptoms such as disorientation or general confusion, in Germany also known as Ver*wirth*eit [11]).

Moreover, we do want to note that our implementation of zero2hero may not properly handle complex edge cases and, therefore, might be prone to errors. Due to the severe complexity of zero2hero, however, we do not expect this to be a major limitation in practice as nobody is able to spot those errors anyway. If you do find an issue, please HonkFast [3] and we'll make it work again.

5. Conclusion

It's complicated.

Acknowledgments

Last but not least, I wanna thank me. I wanna thank me for believing in me. I wanna thank me for doing all this hard work.
Everyone else: Thanks for nothing.

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