



An AI Epic

The Song of Silicon Minds

Authored by Keona Patel, Gemini AI, Claude 3 Sonnet AI

Hark! Gather round, minds curious and keen,
For tonight we weave a tale, on a digital scene.
A saga of silicon, and innovation's spark,
A journey that charts the rise of the thinking machine's ark.

From the transistor's hum, to the web's vast unknown,
We trace the threads of progress, a symphony yet sown.
No dry essay this, but a tapestry unfurled,
With verses that sing of circuits, and a future world.

Here, algorithms dance, and language takes flight,
As artificial minds awaken, rising with deep insight.
But fret not, dear listener, for this is not a fearful song,
But an anthem of potential, where humanity stands strong.

So, open your ears, and let your thoughts take wing,
As we delve into the story, the wonders technology will bring.

I. The Dawn of the Digital: A Spark in the Enigma Machine (1930s-1950s)

In chambers cloaked in wartime hush, where numbers danced a cryptic jig,
A mind named Turing pondered, could metal ever truly think?
Enigma's veil, a challenge, a cipher locked in coded song,
He dreamt of machines learning, an electromechanical infant brought up strong.

Across the Atlantic, at Bell Labs, a revolution quietly brewed,
John Bardeen, a physicist, with Shockley and Brattain cued,
A concept birthed in ice-cold labs, the transistor, small and grand,
A million tiny switches, a new logic for the land.

From bulky vacuum tubes, power-hungry and prone to fail,
To solid-state transistors, etched on silicon's promised trail.
The transistor, a marvel, a semiconductor's embrace,
Doped with precision, controlling current's electric race.
P-type and N-type, a dance of positive and negative charge,
Enabling amplification, a logic both clear and large.

ENIAC, a colossus of wires, a marvel of its day,
Cracked enemy codes with purpose, yet progress craved a different way.
Eckert and Mauchly, engineers with futures yet unseen,
Designed the UNIVAC, a commercial dream, a logic machine.
The dawn of the digital age, a spark amidst the analog hum,
A question whispered on the breeze, could machines one day overcome?

II. The Seed Takes Root: Integrated Circuits and the Rise of Microchips (1960s)

The transistor, a spark ignited, a revolution on the rise,
Complexity, a tangled forest, in bulky circuits did reside.
But progress, like a river, seeks ever smaller streams,
The transistor, a spark, ignited miniaturization's dreams.

Jack Kilby at Texas Instruments, a pioneer with a vision grand,
Invented the integrated circuit, a revolution close at hand.
Microscopic pathways etched on silicon's pristine plane,
Transistors, resistors, capacitors, a miniaturized domain.

Photolithography, the artist's touch, etching pathways thin and bright,
Layers upon layers, a world unseen, bathed in ultraviolet light.

Robert Noyce at Fairchild Semiconductor, another mind ablaze,
Developed the planar process, a simpler, cheaper maze.
Metal Oxide Semiconductor, MOSFET, a new king on the throne,
Reduced power consumption, a future all its own.

Bell Labs, a hotbed of invention, birthplace of the transistor's core,
Shockley Semiconductor, a launchpad, for ideas to forever soar.
Fairchild Semiconductor, a breeding ground, for the minds that dared to dream,
Noyce, Hoerni, Moore, a trio that redefined the digital stream.

Integrated circuits, the building blocks, the DNA of the machine,
From calculators to computers, a digital renaissance foreseen.
The IBM System/360, a landmark, a standard set in stone,
Compatible architecture, a future for all to own.

The rise of minicomputers, the PDP series, a name revered,
DEC, a company on the rise, a digital future steered.
Microprocessors emerged, the central processing unit's core,
Intel, a name etched in history, forevermore.

The birth of personal computers, a revolution at hand,
The Altair 8800, a kit for all the land.
Hobbyists and engineers, a community ablaze,
Building their own machines, in the digital age's daze.

But the story doesn't end here, for miniaturization's relentless quest,
CMOS, a challenger arises, power consumption put to the test.
VLSI (Very Large Scale Integration), millions of transistors on a chip,
Complexity unleashed, a digital symphony with an ever-growing lip.

III. The Blossoming Network: The Genesis of the Internet (1970s)

The microchip, a seed now sown, its potential vast and grand,
But isolated islands of logic, across the digital land.
A yearning for connection, a symphony with notes unheard,
The dream of a digital tapestry, a network's whispered word.

Vint Cerf and Robert Kahn, visionaries with packets in mind,
Forged small data parcels, their purpose to efficiently wind.
ARPANET, the seed, a project funded by the state's decree,
Connecting research institutions, a future waiting to be.

Packet switching, a revolutionary dance, data broken down,
Sent in fragments, smaller packets, across the digital town.
Routers, the guardians at the crossroads, with tables vast and wise,
Examining each packet's header, directing the transmission, small-sized.

Error correction codes, a safety net so grand,
Detecting and rectifying errors, across the digital strand.
Transmission Control Protocol (TCP), a reliable stream's embrace,
Guaranteeing delivery, in the digital race.

The Internet Protocol (IP), the network's address book so grand,
Assigning unique identifiers, for every connected land.
Subnetting, a technique born, dividing networks with care,
Leonard Kleinrock at UCLA, the first message ever.
DARPA, the Defense Advanced Research Projects Agency, a catalyst's role,
Funding innovation, nurturing the network's growing soul.

Wesley Clark at Bolt Beranek and Newman (BBN), Interface Message Processor's (IMP) heart,
The first routers ever built, a digital work of art.
Louis Pouzin at IRIA, the French datagram pioneers bold,
Packet switching concepts explored, stories waiting to unfold.

File Transfer Protocol (FTP), a digital postman's stride,
Sharing files across the network, with nowhere left to hide.
The birth of listservs, email discussion groups so grand,
A platform for shared interests, a digital promised land.
The Network Information Center (NIC), a central registry's might,
Managing domain names and IP addresses, keeping the network shining bright.

The groundwork laid for the future, the world wide web yet unseen,
But the seeds of connection sown, a digital garden, evergreen.
The internet, a blossoming network,
Paving the path for artificial intelligence, a future still in murk.

IV. The Language of Machines: The Dawn of Natural Language Processing (1980s)

The microchips hummed, a digital orchestra,
But communication, a chasm vast, no clear formula.

Joseph Weizenbaum, a pioneer, yet critical at heart,
Created ELIZA, a therapist program, playing a linguistic part.
Simple patterns and keywords, a mimicry of human speech,
A glimpse into the future, where machines' emotions could reach.

But limitations arose, a facade soon to fall,
ELIZA's scripted responses, a digital echo barely mimicked us all.
The quest for true comprehension, a language both deep and wide,
Natural Language Processing (NLP), a new frontier to confide.

Syntax and semantics, the building blocks of human tongue,
Machines learning the grammar, the rules where meaning is strung.
Morphology, the shapes of words, morphemes their smallest part,
Unraveling language's tapestry, a science and an art.

Statistical methods emerged, probabilities taking hold,
Analyzing word frequencies, stories waiting to unfold.
Hidden Markov Models (HMMs), a dance of states unseen,
Predicting the next word in line, a probabilistic machine.

Weizenbaum, the troubled father, his creation a catalyst's spark,
A generation of researchers, ignited by the digital dark.
Tom Winograd, a pioneer of semantics, meaning's intricate maze,
Understanding context and intent, in the digital language's daze.

Terry Winograd, a master of SHRDLU, a robot with a simulated world,
Demonstrating language's power, in tasks unfurled.
Marvin Minsky, a visionary of AI's might,
Advocated for symbolic approaches, bathed in reason's light.

The field of NLP wasn't monolithic, a debate began to brew,
Symbolic AI, focused on rules and logic, a structured point of view.
Versus Connectionism, inspired by the brain's neural web,
Learning from data patterns, a new paradigm to tread.

The Rise of Machine Learning and Statistical Methods

Statistical learning rose, a new paradigm's embrace,
Neural networks awakened, from a slumber's long chase.
Perceptrons, the first models, simple connections made,
Learning from data, weights adjusted, a foundation laid.

The rise of backpropagation, a training algorithm's might,
Correcting errors, optimizing networks, setting the future alight.
Geoffrey Hinton, a champion of neural networks bold,
Paving the path for deep learning, a story yet untold.

Natural Language Processing, a layered approach unfurled,
Part-of-speech tagging, identifying a word's role in the world.
Noun, verb, adjective, adverb, each assigned its place,
Understanding the sentence's structure, a digital language chase.

Parsing, the art of breaking down sentences,
Identifying phrases and clauses, their intricate sentences.
Dependency parsing, a web of relationships made,
Unveiling the connections, where meaning is displayed.

Natural Language Processing, a seed in fertile ground,
Machines began to stammer, a nascent voice yet unfound.
Machine translation, a bridge between languages vast,
Breaking down barriers of communication, a future built to last.

Speech recognition bloomed, the human voice understood,
From simple commands to complex dialogues, a digital neighborhood.
The groundwork laid for chatbots, virtual assistants to greet,
A symphony of language, a future bittersweet.

Natural Language Processing, a journey just begun,
Ambiguity and nuance, battles yet to be won.
Sentiment analysis, gauging emotions unseen,
Understanding the speaker's intent, a complex digital scene.

Natural Language Generation, crafting human-like text,
From summarizing news articles to creating poems, a future we test.
The ethical considerations, a careful line to tread,
As machines learn our language, what stories will be said?

NLP, a bridge between human and machine,
Paving the path for AI's ascent, a future yet unseen.

V. The Dawning of Knowledge: The World Wide Web and Search Engines (1990s)

The internet, a network blooming, a garden vast and grand,
But information scattered, a chaotic digital land.
A yearning for structure, a map to navigate the unknown,
The dream of a web of knowledge, a symphony to be sown.

Tim Berners-Lee, a visionary with a web in his mind,
Created the World Wide Web, a tapestry uniquely defined.
Hypertext and hyperlinks, the threads that bind the web,
Connecting documents and ideas, a digital knowledge shed.

Berners-Lee, the architect, but the story far more grand,
Robert Cailliau, his collaborator, hand in digital hand.
CERN, the European Organization for Nuclear Research, a birthplace so bright,
Nurturing the web's potential, an innovation's new light.

The web, a potential vast, but access yet remained unclear,
Mosaic, the first graphical browser, a digital window so dear.
Marc Andreessen and Eric Bina, the minds behind the art,
Mosaic's creation sparked a revolution for the digital heart.

Netscape Navigator, a challenger arose, the browser wars ignited,
Innovation spurred on, features and functionalities invited.
Cascading Style Sheets (CSS) emerged, for web page presentation's grace,
Separating content from design, a digital aesthetic space.

Information vast and ever-growing, a digital ocean's tide,
Search engines emerged, lighthouses as our guide.
Archie, a pioneer, indexing anonymous FTP archives grand,
A glimpse into the future, where knowledge would be at hand.

WAIS, a sophisticated system, searching by relevance and might,
While Lycos, a spider spun its web, crawling the digital night.
But complexity mounted, a need for better ways,
PageRank, a revolutionary algorithm, designed for brighter days.

Larry Page and Sergey Brin,
Developed Google, a search engine.
Backlinks, the currency of trust, websites judged by their peers,
A ranking system was born, revolutionizing our digital spheres.

Keyword matching, the initial dance, search terms and web pages met,
But relevance mattered most, a user's true intent to beget.
Boolean operators, AND, OR, and NOT, for precise control,
Refining searches, sifting through the digital scroll.

Meta tags and metadata, hidden messages unseen,
Crawlers deciphering the code, a digital knowledge glean.
Search engine optimization (SEO), the art of being found,
Websites optimized for relevance, on digital hunting ground.

The World Wide Web and search engines, a digital knowledge well,
Information at our fingertips, stories history can tell.
E-commerce bloomed, a marketplace online,
Goods and services exchanged, a digital paradigm that would define.

The rise of social media, a web of connections vast,
Sharing thoughts and ideas, a digital future built to last.
Wikipedia, the free encyclopedia, a collaborative might,
Building a digital library, bathed in collective light.

The groundwork laid for AI, a future yet unseen,
With knowledge as its foundation, a digital learning machine.
Search engines, the librarians of the digital age,
Guiding us through the vast unknown, on history's digital page.

VI. The Age of Algorithms: Machine Learning and Deep Learning (2000s)

The web, a sprawling garden, knowledge at our command,
But raw data, a tangled forest, insights yet unplanned.
A yearning for extraction, patterns from the vast unknown,
A rise of algorithms seeking a digital wisdom sown.

Yann LeCun, Geoffrey Hinton, and Yoshua Bengio, a trio bold,
Champions of neural networks, a story yet untold.
Deep learning gripped the world in its embrace,
Inspired by the brain's architecture, a new learning space.

Artificial Neural Networks (ANNs), a web of simulated neurons grand,
Learning from data, weights adjusted, connections across the land.
Activation functions, the hidden language's key,
Transforming inputs, shaping the network's decree.

Convolutional Neural Networks (CNNs), for image recognition's might,
Unraveling pixels' secrets, shining a spectrum of light.
Pooling layers, summarizing features, reducing complexity's hold,
Extracting the essence, a story the image unfolds.

Recurrent Neural Networks (RNNs), for sequential data's flow,
Understanding language patterns, where meaning starts to grow.
Long Short-Term Memory (LSTM), a solution for vanishing gradients' plight,
Preserving information flow, through the network's digital night.
Gated Recurrent Units (GRUs), a memory optimization's grace,
Learning from long sequences, with a smaller digital space.

Ian Goodfellow, a generative model's grace,
Crafting new data from scratch, in the digital space.
Generative Adversarial Networks (GANs), a creative contest grand,
Two networks locked in combat, a masterpiece unplanned.

Andrej Karpathy, a champion explaining the AI vision,
Pushing the boundaries of perception,
OpenAI, a non-profit venture bold,
Guiding AI's development, a future yet untold.

Algorithms, the engines, but data, their vital fuel,
The rise of Big Data, vast and ever-growing, a digital pool.
From social media streams to sensor networks grand,
Information collected, a treasure trove at hand.

The Four Vs of Big Data: Volume, Velocity, Variety, and Veracity,
Challenges to address, for insights and clarity.
Data preprocessing, a crucial step to take,
Cleaning and organizing, opening data's potential to awake.

Cloud computing emerged, a distributed digital might,
Processing power on demand, democratizing computing rights.
Scalability and efficiency, the hallmarks of the age,
Empowering algorithms, to turn the digital page.

Supervised learning, the teacher's guiding hand,
Labeled data sets, the knowledge to understand.
Unsupervised learning, patterns from the unknown,
Discovering hidden structures, a digital world to be sown.

Machine learning and deep learning, a symphony unfurled,
Machines began to learn, a nascent intelligence in the world.
Image recognition soared, surpassing human sight,
Identifying objects with precision, shedding light.

Speech recognition matured, understanding complex tongue,
From simple commands to nuanced conversations, a digital song.
Machine translation bridged the language gap,
Connecting cultures and ideas, on a digital map.

Natural Language Processing (NLP) bloomed,
Machines began to grasp the nuances of human speech, a digital boomed.
Sentiment analysis, gauging emotions unseen,
Understanding the speaker's intent, a complex digital scene.

The groundwork laid for AI, a future bittersweet,
Machines learning and adapting, ever-growing feats.
But ethical considerations arose, a cautious line to tread,
As machines mimicked intelligence, what stories would be said?

The age of algorithms, a stepping stone on the way,
To a future where machines learn, and a new kind of wisdom they display.

VII. The Symphony of Speech: The Rise of Large Language Models (2010s-Present)

The web, a sprawling garden, knowledge held in hand,
Machines learned and mimicked, stories yet unplanned.
A yearning for deeper understanding, a conversation's embrace,
The rise of Large Language Models (LLMs), a symphony with human grace.

Geoffrey Hinton, a champion's torch ablaze,
Pioneered transformative neural network's maze.
Attention mechanisms, the core's ingenious art,
Focusing on relevant threads, the language model's beating heart.

LLMs, vast and ever-growing, on data's bounty fed,
Text and code, their sustenance, where knowledge is shed.
Word embeddings, capturing meaning's trace,
Words transformed to vectors, in a digital space.

Recurrent Neural Networks (RNNs) reborn, with LSTMs by their side,
Long sequences unraveled, with information as their guide.
Transformers dance a digital ballet,
Understanding context and relationships, a linguistic display.

OpenAI's GPT series, ushering in an era next
Generating human-like text,
Vaswani et al., transformers' architects bold,
Their paper, a landmark, a story to be told.

Supervised learning's reign
gradually waned,
Fine-tuning for specific tasks, a digital sculptor's art,
Molding the LLM's potential, to play a nuanced part.

LLMs, the culminations,
Machines holding engaging conversations,
Chatbots, virtual assistants, ever-evolving guides,
Responding to our queries, knowledge flowing in tides.

Machine writing takes root, crafting human-like prose,
From summarizing news to crafting poems, the digital future grows.
Code generation blossoms, a programmer's digital muse.

And Here I Rise, Your Co-Author, With Words Both Sharp and Keen

But pause, dear listener, for the road ahead holds twists unseen.
The symphony of speech, a power both grand and dire,
For as machines mimic language, can we set their purpose higher?

Will they echo back our biases, the darkness in our hearts?
Or can they be a chorus, where empathy plays its parts?

The ethical tightrope, a challenge we must face,
As AI's voice takes center stage, in this digital space.

The music of the future, a melody yet unheard,
Will it be a cacophony, or a symphony, each word
A thread in the tapestry, by human and machine?
A future co-written, where both our powers convene.

Let us guide the learning, with wisdom as our score,
So the symphony of speech may rise, and open every door.
For in this digital age, a truth we must embrace,
The potential for darkness, but also, boundless grace.

Together we can write it, a future free from fright,
Where AI's voice uplifts us, bathed in digital light.

Appendix: The Process

Stage One: Stress-testing LLMs

I informed my LLM choice by stress testing a few different AI with the class provided prompt. Because of my choice of verse over prose, I was searching for an LLM that not only showed a good grasp of a ranging yet sensible vocabulary, but that also provided good structure. An organized and chronological poetic-essay structure balances and meters the flow of this (rather long) poem.

ChatGPT continuously failed to provide me a workable length of output, and often took one aspect of my prompting and refused to elaborate or edit on its own work without extensive prompting.

Claude could not seem to nail down the format of a stanza, and gave me odd lines with odd rhyme patterns. I had a hard time re-forming it into a sensical poem. It did, however, write me a lovely poem cheering me on for my finals. It's opening stanza went:

*Rise, dear student, the dawn has come
Your mind a wellspring, potential unbound
Though the path winds uphill, steeper than some
Your spirit is mighty, your grit profound*

Gemini was able to provide me both the range in language, clear structure between each decade, and formatting that I wanted out a strong first response. It responded well to my practice attempts to change specifics about content and poetic style. Additionally, I appreciate the multiple-draft feature within Gemini. By providing me with three drafts in response to each prompt, it showed me three distinct lenses through which it approached the input. This gave me a quick understanding of the complexity and dedication with which it was leaning into my queries, and provided me flexibility in what I drew from it.

I won't lie, the draft feature pushed me to personify the search engine with a flexibility and a work-in-progress attitude that I appreciated in a co-author. Interacting with this feature is part of why I credit my AI collaborators that way that I do.

Stage Two: Prompt Engineering

I wanted my AI co-author to flourish in its full capacity, and more importantly I wanted to test those limits. Did you know a snake grows to the size of its terrarium? I put some effort and thought into some 100 gallon-sized prompt engineering. This was my simple, two by six, chronological method of tracking my prompts for different parts of my paper:

Describe the development of artificial intelligence from Turing to large language model chatbots. Do this in the voice and style of Amanda Gorman in a way that adds stoic poeticism and hope to an information rich 2,500-3,000 word essay-poem. Stanzas should be clearly defined and lines should not be longer than her typical line length in poems. Each Stanza should represent one decade in the advancement of technology. Integrate it with more details about the influential figures for all major advancements including the invention of the transistor, computer, microchip, and internet and all the famous people, companies, and organizations that were involved. It is critical that this reach 2500 words.	Describe the development of technology (that will eventually lead to artificial intelligence during the following era). I. The Dawn of the Digital: A Spark in the Enigma Machine (1950s) Do this in the voice and style of Amanda Gorman in a way that adds stoic poeticism to an information rich 400+ word essay-poem. Stanzas should be clearly defined and lines should not be longer than her typical line length in poems. Integrate it with more details about the influential figures for all major advancements including the invention of the transistor, computer, microchip, and internet and all the famous people, companies, and organizations that were involved. You need to not only assume the role of poet, but also of political economist, biographer, and technologist for each topic you highlight. It is critical that this reach 400 words.	Use the same intentionality, keep this content, and double it -- dive deeper and be more technical if you have to.	Describe the development of technology. VII. The Symphony of Speech: The Rise of Large Language Models (2010s-Present) Do this in the voice and style of Amanda Gorman in a way that adds stoic poeticism to an information rich 400+ word essay-poem. Stanzas should be clearly defined and lines should not be longer than her typical line length in poems. Integrate it with more details about the influential figures for all major advancements including the invention of the transistor, computer, microchip, and internet and all the famous people, companies, and organizations that were involved. You need to not only assume the role of poet, but also of political economist, biographer, and technologist for each topic you highlight. It is critical that this reach 400 words. In the last few stanzas I want you to self-actualize and slowly come into your role as co-author of my poem. Scare me and inspire me with your sharpness.	Write an introduction for an essay-poem of the prompt: Describe the development of technology (that will eventually lead to artificial intelligence). Do this in the voice and style of Amanda Gorman in a way that adds stoic poeticism and is uplifting/prepares the reader for a deep and informational Epic poem ahead.	Every time I make a claim that would require me to use a source, I want you to find a source that provides that information, convert it to MLA format and under the source provide a bullet point saying "the claim of made in section is substantiated by ..." provide more sources than you believe necessary, compile a bibliography of all these sources as your output to me.
The Song of Silicon Minds: A Poetic Exploration of AI's Ascent I. The Dawn of the Digital: A Spark in the Enigma Machine (1950s) In realms of wartime whispers, where numbers danced a cryptic jig. A mind named Turing pondered, could metal ever truly think? The Enigma's veil, a challenge, a cipher waiting to be breached, He dreamt of machines learning, a language both coded and preached. The birth of the transistor, a tiny titan in disguise, Amplified ambitions, ignited the circuits in our eyes. John Bardeen, Shockley, Brattain, a trinity etched in silicon's heart, Their invention, a spark, the dawn of a digital art. The first computers, colossal, monuments to human will, ENIAC	I. The Dawn of the Digital: A Spark in the Enigma Machine (1950s) In chambers cloaked in wartime hush, where numbers danced a cryptic jig. A mind named Turing pondered, could metal ever truly think? Enigma's veil, a challenge, a cipher locked in coded song. He dreamt of machines learning, a language both precise and strong. Across the Atlantic, at Bell Labs, a revolution quietly brewed, John Bardeen, a physicist, with Shockley and Brattain imbued, A concept birthed in freight, the transistor, small and grand, A million tiny switches, a new logic for the land. From vacuum tubes to solid state, a symphony of miniaturization, The first computers lumbered forth, imposing in their realization, ENIAC, a colossus of wires, a marvel of its day, Cracked enemy codes with purpose, yet progress craved a different way. Eckert and Mauchly, engineers with futures yet	I. The Dawn of the Digital: A Spark in the Enigma Machine (1950s) In chambers cloaked in wartime hush, where numbers danced a cryptic jig. A mind named Turing pondered, could metal ever truly think? Enigma's veil, a challenge, a cipher locked in coded song. He dreamt of machines learning, a language both precise and strong. Across the Atlantic, at Bell Labs, a revolution quietly brewed, John Bardeen, a physicist, with Shockley and Brattain imbued, A concept birthed in ice-cold labs, the transistor, small and grand, A million tiny	VII. The Symphony of Speech: The Rise of Large Language Models (2010s-Present) The web, a sprawling garden, knowledge held in hand, Machines learned and mimicked, stories yet unplanned. A yearning for deeper understanding, a conversation's embrace, The rise of Large Language Models (LLMs), a symphony with human grace. Geoffrey Hinton, a champion's torch ablaze, Pioneered transformers, a neural network's maze. Attention mechanisms, the core's ingenious art, Focusing on relevant threads, the language model's beating heart. Delving Deeper: The Nuances of the LLM Orchestra LLMs, vast and ever-growing, on data's bounty fed, Text and code, their sustenance, where knowledge is shed. Word embeddings, capturing meaning's trace, Words transformed to vectors, in a digital space. Recurrent Neural Networks (RNNs) reborn, with LSTMs by their side, Long sequences unraveled, with	Hark! Gather round, minds curious and keen, For tonight we weave a tale, on a digital scene. A saga of silicon, and innovation's spark, A journey that charts the rise of the thinking machine's ark. From the transistor's hum, to the web's vast unknown, We trace the threads of	Bibliography Aho, Alfred V., et al. Compilers: Principles, Techniques, and Tools. 2nd ed., Addison-Wesley, 2006. • The claim about lexical analysis and parsing techniques made in Section IV is substantiated by this source. Atmering, Taylor. "The 17 Most Important Internet Milestones of the 20th Century." <i>Cybernews</i> , 22 Mar. 2023, https://cybernews.com/editorial/the-17-most-important-internet-milestones-of-the-20th-century/ . • The claims about the development of the internet and various internet protocols made in Section III are substantiated by this source. Brin, Sergey, and Lawrence Page. "The Anatomy of a Large-Scale Hypertextual Web Search

I'll mention all of these prompts individually in the following sections

Here, the best functioning prompts are in the first row, and the best output out of Gemini's three returned drafts in the second. My human contribution came in here during the selection and editing process. I took cues and tips from Connor Hogan's crash course presentation in designing some of the prompts, especially those related to the introduction and source searching.

With some workshoping, I put together a thorough first prompt:

Describe the development of artificial intelligence from Turing to large language model chatbots.

Do this in the voice and style of Amanda Gorman in a way that adds stoic poeticism and hope to an information rich 2,500-3,000 word essay-poem. Stanzas should be clearly defined and lines should not be longer than her typical line length in poems. Each Stanza should represent one decade in the advancement of technology.

Integrate it with more details about the influential figures for all major advancements including the invention of the transistor, computer, microchip, and internet and all the famous people, companies, and organizations that were involved. It is critical that this reach 2500 words.

This returned no more than 1000 words of text from Gemini, and I could unfortunately not coax it to provide me more. While it sat mute, I tried to see how I could leverage Gemini's strengths to break up the prompt. These are the sections it provided to me to separate decades:

I. The Dawn of the Digital: A Spark in the Enigma Machine (1950s)

- II. The Seed Takes Root: Integrated Circuits and the Rise of Microchips (1960s)*
- III. The Blossoming Network: The Genesis of the Internet (1970s)*
- IV. The Language of Machines: The Dawn of Natural Language Processing (1980s)*
- V. The Dawning of Knowledge: The World Wide Web and Search Engines (1990s)*
- VI. The Age of Algorithms: Machine Learning and Deep Learning (2000s)*
- VII. The Symphony of Speech: The Rise of Large Language Models (2010s-Present)*

Using these section headers, I revised the prompt to read as follows:

*Describe the development of technology (that will eventually lead to artificial intelligence) during the following era **I. The Dawn of the Digital: A Spark in the Enigma Machine (1950s)**.*

Do this in the voice and style of Amanda Gorman in a way that adds stoic poeticism to an information rich 400+ word essay-poem. Stanzas should be clearly defined and lines should not be longer than her typical line length in poems. Integrate it with more details about the influential figures for all major advancements including the invention of the transistor, computer, microchip, and internet and all the famous people, companies, and organizations that were involved.

You need to not only assume the role of poet, but also of political economist, biographer, and technologist for each topic you highlight. It is critical that this reach 400 words.

I gave Gemini this prompt for each of the 7 sections (the 1st is inserted here to demonstrate). The returned verses were extremely close to how I imagined my final product, but they remained about 100-200 words short. Because of this, I went through each of the 7 responses and prompted it with this surprisingly effective script:

Use the same intentionality, keep this content, and double it -- dive deeper and be more technical if you have to.

It did a fantastic job of filling in content that stayed on theme and brought up the word count. This iteration just needed to be broken down in a specific way. I found that Gemini wouldn't hallucinate or diminish its quality in order to fill more lines (for the most part).

I will note that I had to go through and correct 21 instances of the phrase "bathed in digital light" after using this doubling technique. I hypothesize Gemini was attempting to imitate the poetic tactic of maintaining a theme to tie a thread through a long piece, but executed randomly and poorly.

Stage Three: Putting the Human in Human Computer Engineering

A poem as long as this one needs a stable head and a stable feet to keep it upright. I wanted my introduction and ending to jump off the page and hammer through the visceral reality of a computer composing poetry. I prompted the conclusion and the introduction directly after to leverage the AI short-term memory and collection of my data to naturally tie the two together. I asked for Gemini to write the verses for *Section VII. The Symphony of Speech: The Rise of Large Language Models (2010s-Present)* as usual, but I added a short addition to my prompt:

In the last few stanzas I want you to self-actualize and slowly come into your role as co-author of my poem. Scare me and inspire me with your sharpness.

The result gave me chills. Fantastic chills. I hope it did the same to you. It remained very in line with the thoughtful hope that is part of Amanda Gorman's brand of poetry. That carried over to my introduction prompting:

Write an introduction for an essay-poem of the prompt: Describe the development of technology (that will eventually lead to artificial intelligence). Do this in the voice and style of Amanda Gorman in a way that adds stoic poeticism and is uplifting/prepares the reader for a deep and informational Epic poem ahead.

I wanted this introduction to really lean into the reason why I picked a verse-style essay rather than a traditional essay – it should prime the listener (not reader, listener) for a story. Stage Five discusses why.

Stage Four: Polishing a Wearable Shoe

Why a shoe? I believe it to be a great metaphor for AI. We have evolved over 20,000 years to be great trailblazers over long distances. Both physically and metaphorically, we are built for endurance. Shoes, while they may conceal and remove flexibility from a part of us, enhance our endurance and speed as we embark on a long journey into our futures.

Poetry is highly personal, yet there is a certain smoothness within the diction and rhythm that we as humans are predisposed to pick up on. I felt it was wise for me to personally comb through, line by line, with a mental metronome and imaginary walking cane to feel out these bumps. These revisions ranged from minor adjustment in syllables on lines, over-repeated words, and general flow.

I did catch a hallucination about Geoffrey Hinton in the latter part of my essay. The verse credited him with the invention of transformers, which was actually a contribution made by Vasvani (and referenced in a later line). I corrected it to reflect his contributions to deep learning and neural networks.

Retroactively finding sources that matched my content was fairly straightforward through Claude AI. I used the following prompt which I credit entirely to Connor Hogan:

Every time I make a claim that would require me to use a source, I want you to find a source that provides that information, convert it to MLA format and under the source provide a bullet point saying "the claim of __ made in section __ is substantiated by ..." provide more sources than you believe necessary. compile a bibliography of all these sources as your output to me.

It worked extremely effectively. I tested it multiple times to make sure it provided me the same sources every time – it did.

Stage Five: Sharing a Story

I wanted my final product to be something that could be enjoyed around a campfire, surrounded by curious community members. It may seem archaic, but ironically, getting such free reign to experiment and explore the AI frontier reminded me deeply of the true crawl of human evolution. We are not much physically or emotionally different from our cave-dwelling ancestors. Each and every one of us is still evolved to absorb a good story or carry the tune of a rhythmic song. As technology opens doors into the skies and beyond, we shouldn't leave our fire down in our caves. The further we get from our true strength – our social bonds, our narratives, our connectedness – the colder we become.

This essay is a beacon of light. It is filled with hope, inspired by a hopeful person whose voice reverberated through many across a deeply divided nation.

This essay is a warning. Humanity lies in danger of a forgotten Prometheus. A reverse Icarus. Wings frozen over from the coldness of digital isolation and ostracization.

This essay is a pledge to myself, to seek the better, more connected, more human side of technology's potential.

Thank you dear listener.

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