Gen AI for Financial Risk

Learn Agentically powered Gen AI ; Gen AI Agentic Framework for Financial Risk Analytics !

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Contents

List of Figures

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Foreword

> If I have seen further it is by standing on the shoulders of Giants.
>
> *(Isaac Newtown, 1675)*

Here's a Section Title

Here is some normal book text, and here are some points:

- Point one
- Point two
- Point three

Highlight Boxes

You can make use of these highlight boxes:

✅ Green Highlight Boxes ✅

I use green highlight boxes for positive or success milestones in a book.

ℹ️ Blue Highlight Boxes ℹ️

I use blue highlight boxes for important caveats, information, or tips.

⚠️ Yellow Highlight Boxes ⚠️

I use yellow highlight boxes for any gotchyas, warnings, or things that could go wrong.

Use the Index, Listings, Recipes, and Figures to Your Advantage

By the power of LaTeX, a variety of helpful references have been built into this book:

The list of listings also includes every code snippet in the entire book with a detailed description. Use it to jump to whatever snippet you'd like to look at.

Likewise, the list of Recipes is a custom listing of reusable style code that shouldn't need to be refactored away from ReduxPlate - these recipes are generic snippets or files that can be reused in any SaaS product.

Are You Ready?

Something something, let's go!

- Jane Doe

Town, Country, May 2023

1. Gen AI in Finance in light of Agentic Framework: Trends

It's really rare for people to have a successful start-up in this industry without a breakthrough product. I'll take it a step further. It has to be a radical product. It has to be something where, when people look at it, at first they say, 'I don't get it, I don't understand it. I think it's too weird, I think it's too unusual.

(Marc Andreessen)

Here's some text in the section

Chapter titles Intro to LLM in Finance (not just risk but all Finance)
Data Engineering and Data lakes for Gen AI (need to write)
Agentic Design of Full stack Gen AI system for fin risk analytics,
Agent-Oriented Architectures for Financial Data Pipelines (need to write)
Gen AI in Credit Risk (same paper logistic Regression) Huggin face
Gen AI in Market Risk (gan vae part 1, then calculate VaR)
Gen AI for Interest Rate modeling (gan vae part 2)

Gen AI in Structured Finance (to write- you have the subtopics already - treasury MBS etc models)

Gen AL Prompt Engineering for Financial Risk (use the one you have)

Gen AI in Model Implementation for Financial Risk, (todo)

Here's some text in the section second

2. Financial Risk Management in light of Gen AI aiding Regulation

> You've got to start with the customer experience and work backwards to the technology.
>
> *(Steve Jobs, 1997)*

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

Chapter Objectives

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 2.1: </> terminal

```
npm install express
```

Here's a longer code snippet, an MIT license:

Listing 2.2: </> LICENSE

```
MIT License

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Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
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FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
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LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
```

and an even longer code snippet, an SEO React TypeScript component:

Listing 2.3: </> Seo.tsx

```tsx
import * as React from "react"
import { Helmet } from "react-helmet"
import { useStaticQuery, graphql } from "gatsby"
import { siteMetadata } from "../../gatsby-config"

export interface ISeoProps {
  title: string
  description?: string
}
```

```
function Seo(props: ISeoProps) {
  const { description, title } = props
  const { site } = useStaticQuery(
    graphql`
      query {
        site {
          siteMetadata {
            title
            description
            author
          }
        }
      }
    `
  )

  return (
    <Helmet>
      {/* General tags */}
      <title>{title}</title>
      <meta
        name="description"
        content={description || siteMetadata.description || ""}
      />
      <meta property="og:title" content={title} />
      <meta
        property="og:description"
        content={description || siteMetadata.description || ""}
      />

      {/* Twitter Card tags */}
      <meta name="twitter:card" content="summary_large_image" />
      <meta name="twitter:creator" content={site.siteMetadata?.author || ""} />
      <meta name="twitter:title" content={title} />
      <meta
        name="twitter:description"
        content={description || siteMetadata.description || ""}
      />
    </Helmet>
  )
}
```

```
export default Seo
```

Listing 2.4: </> toasts.scss

```
.Toastify__progress-bar--default {
  background: \$primary !important;
}
```

You can also include code from a file. For example, here's a SCSS file:

Listing 2.5: </> _toasts.scss

```
.Toastify__progress-bar--default {
    background: $primary !important;
}
```

Listing 2.6: </> Seo.tsx

```
import * as React from "react"
import { Helmet } from "react-helmet"
import { useStaticQuery, graphql } from "gatsby"
import { siteMetadata } from "../../gatsby-config"

export interface ISeoProps {
  title: string
  description?: string
}

function Seo(props: ISeoProps) {
  const { description, title } = props
  const { site } = useStaticQuery(
    graphql`
      query {
        site {
          siteMetadata {
            title
            description
```

```
            author
          }
        }
      }
    `
  )

  return (
    <Helmet>
      {/* General tags */}
      <title>{title}</title>
      <meta
        name="description"
        content={description || siteMetadata.description || ""}
      />
      <meta property="og:title" content={title} />
      <meta
        property="og:description"
        content={description || siteMetadata.description || ""}
      />

      {/* Twitter Card tags */}
      <meta name="twitter:card" content="summary_large_image" />
      <meta name="twitter:creator" content={site.siteMetadata?.author || ""} />
      <meta name="twitter:title" content={title} />
      <meta
        name="twitter:description"
        content={description || siteMetadata.description || ""}
      />
    </Helmet>
  )
}

export default Seo
```

Figures

Figures. Figures are also important. Here is an image:

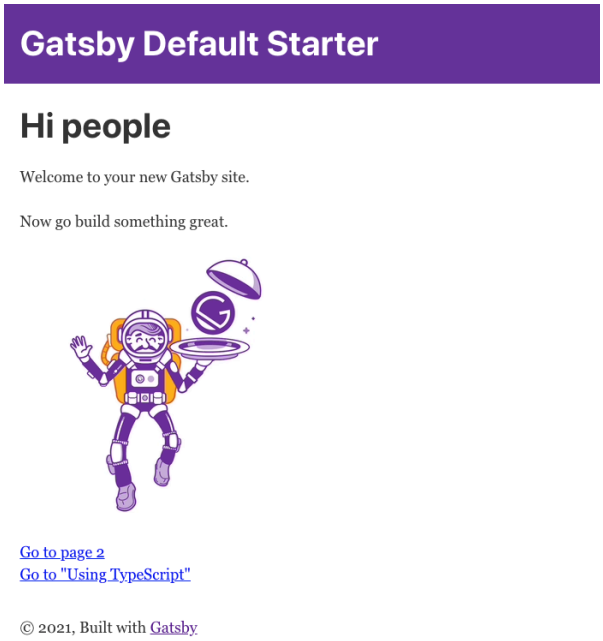

Figure 2.1.: Example caption for the image.

They'll show up automatically in the list of figures.

Emojis

Emojis can also be fun to include in a book. You can use them by the custom commands that are included in this .tex file. Here are some examples:

Soup: Beers: Party Popper:

That's about it! Those should be all the components you need to write an amazing software engineering book. Good luck!

As discussed by Joshi (2025) [1], the integration of Generative AI with Big Data offers significant improvements in financial risk management.

Bibliography

[1] Satyadhar Joshi, *The Synergy of Generative AI and Big Data for Financial Risk: Review of Recent Developments*, International Journal For Multidisciplinary Research, 2025, Volume 7, Issue 1, pp. 1-10.

3. Data Engineering and Data lakes for Gen AI

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

hi

Learn Big Data and Vector Data Bases

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 3.1: </> terminal

```
^^Inpm install express
```

4. Agentic Design of Full stack Gen AI system for fin risk analytics

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

hi

Learn Python for Design

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 4.1: </> terminal

```
^^Inpm install express
```

5. Using Public Facing LLM Models Like ChatGPTs

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

Chapter Objectives

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 5.1: </> terminal

```
^^Inpm install express
```

6. Gen AI in Credit Risk (same paper logistic Regression) Huggin face

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

Chapter Objectives

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 6.1: </> terminal

```
^^Inpm install express
```

7. Gen AI in Market Risk (gan vae part 1, then calculate VaR)

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

hi

Chapter Objectives

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 7.1: </> terminal

```
^^Inpm install express
```

hi

8. Gen AI for Interest Rate modeling (gan vae part 2)

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

hi

Chapter Objectives

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 8.1: </> terminal

```
^^Inpm install express
```

9. Gen AI in Structured Finance (to write- you have the subtopics already - treasury MBS etc models)

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

Chapter Objectives

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 9.1: </> terminal

```
^^Inpm install express
```

10. Gen AL Prompt Engineering for Financial Risk (use the one you have)

In a software book, it's often nice to list chapter objectives at the start of the chapter. I do it this way:

Chapter Objectives

- Some objective
- Some other objective
- Another objective

Code Snippets

Code snippets are of course also essential in a dev book. Here is a code snippet:

Listing 10.1: </> terminal

```
^^Inpm install express
```

11. Gen AI in Model Implementation for Financial Risk, (todo)

2. Add reference to the chapter at the end
   At the end of the chapter, you can add a reference to it like this:

In this chapter, we discussed the implementation of Generative AI models for financial risk prediction. For further details on the methodologies used, please refer to Chapter 11.

3. Using **??**or a textual reference
   Alternatively, if you want to reference the chapter by its name, you can use **??**

As we have seen in the chapter titled Gen AI in Model Implementation for Financial Risk, (todo), the integration of Generative AI plays a crucial role in enhancing financial risk prediction models.

As discussed by Joshi (2025) [1], the integration of Generative AI with Big Data offers significant improvements in financial risk management.

Bibliography

[1] Satyadhar Joshi, *The Synergy of Generative AI and Big Data for Financial Risk: Review of Recent Developments*, International Journal For Multidisciplinary Research, 2025, Volume 7, Issue 1, pp. 1-10.

Afterword

Something, something.

Cheers! 

-Jane

Credits and Thanks

Credit where credit is due! (Note that I am not sponsored or supported by any of these platforms or individuals in anyway):

1. Netlify, for their awesome ”feels like stealing” free tier
2. Bitbucket, for their great UI and tooling, including Bitbucket Pipelines
3. Digital Ocean, for the sheer ease of to start up a Linux instance with a few clicks
4. **Dabolus on DeviantArt**, for all of those juicy hi-res emoji PNGs that I’ve used generously throughout the book!

Appendices

A. Appendix 1

Here is appendix 1.

B. Appendix 2

Here is appendix 2.

About the Author

Figure 11.1.: Jane Doe

Jane Doe is a Senior Full Stack Developer with over 10 years of programming experience, the last 7 of which were in industry. When she's not writing code, building SaaS Products, or teaching full stack software engineering, she can be found painting, writing flute music. She is originally from New York City, but currently resides in a country, in a town, on planet earth.