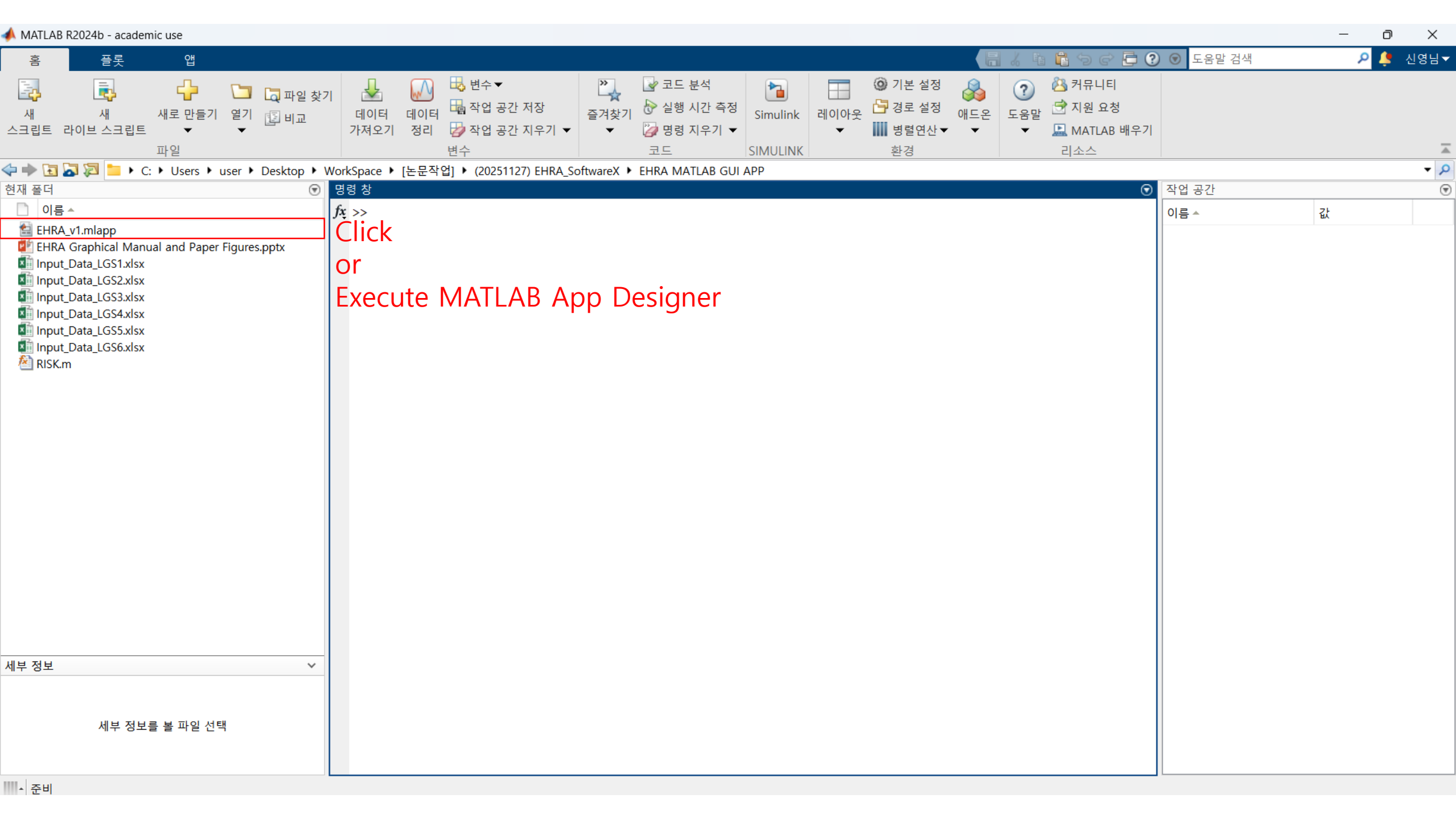
MATLAB R2024b - academic use
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플롯
앱
도움말 검색
신영님
새 스크립트
새 라이브 스크립트
새로 만들기
열기
파일 찾기
비교
파일
데이터 가져오기
데이터 정리
변수
작업 공간 저장
작업 공간 지우기
변수
즐겨찾기
코드 분석
실행 시간 측정
명령 지우기
코드
Simulink
SIMULINK
레이아웃
기본 설정
경로 설정
병렬연산
애드온
환경
도움말
커뮤니티
지원 요청
MATLAB 배우기
리소스
C: ▸ Users ▸ user ▸ Desktop ▸ WorkSpace ▸ [논문작업] ▸ (20251127) EHRA_SoftwareX ▸ EHRA MATLAB GUI APP
현재 폴더
이름
EHRA_v1.mlapp
EHRA Graphical Manual and Paper Figures.pptx
Input_Data_LGS1.xlsx
Input_Data_LGS2.xlsx
Input_Data_LGS3.xlsx
Input_Data_LGS4.xlsx
Input_Data_LGS5.xlsx
Input_Data_LGS6.xlsx
RISK.m
세부 정보
세부 정보를 볼 파일 선택
명령 창
>>
Click
or
Execute MATLAB App Designer
작업 공간
이름
값
준비

앱 디자이너

앱 디자이너

EHRA_v1을(를) 여는 중...

3%

앱 디자이너 - C:\Users\user\Desktop\WorkSpace\[논문작업]\(20251127) EHRA_SoftwareX\EHRA MATLAB GUI APP\EHRA_v1.mlapp

디자이너 | 캔버스 | 보기

새로 만들기 | 열기 | 저장 | 비교 대상 | 앱 세부 정보 | 공유 | 실행 | 스텝 | 중지

파일 | 공유 | 실행

Click, and Confirm and Check Source Codes

컴포넌트 라이브러리

검색

일반

HTML | 날짜 선택기 | 드롭다운 | 라디오 버튼 그룹 | 레이블 | 목록 상자 | 버튼 | 상태 버튼 | 색 선택기 | 스핀 상자 | 슬라이더 | 슬라이더(범위) | 이미지 | 좌표축 | 체크박스 | 테이블 | 텍스트 영역 | 토글 버튼 그룹

EHRA_v1.mlapp

MATLAB 앱

디자인 보기 | 코드 보기

Input File Settings Results Help

Basic Input - 1

1. External Hazard Information

Intensity	AFE (/yr)

Hazard Input (XLS)

2. Hazard Fragility Information

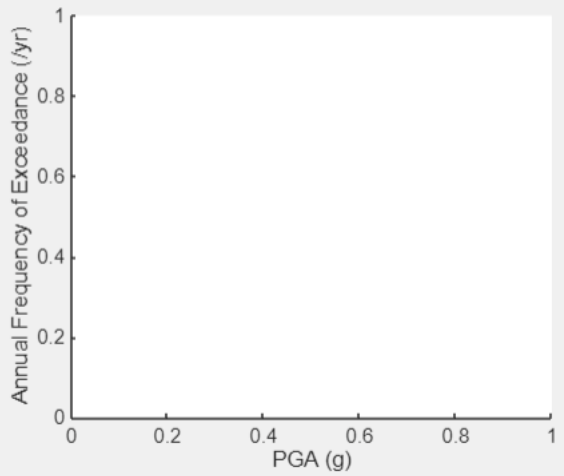
Componenet	Median	Beta_r

Fragility Input (XLS)

Output

Hazard Curves | Component Fragility C

<External Hazard Curves>



Basic Input-2

3. Systems Analysis Model

Name	System Equations(Logic)

Sytem Equation (XLS)

4. Risk Quantification

Intensity Inital 0.000

Intensity Last 0.000

Intensity Subdivision 0.000

# of Samples for Each Intensity 0

Solver

Boolean Algebra (UMB)

Original DQFM

Improved DQFM(Scaling)

컴포넌트 브라우저

검색 | 보기:

EHRA_v1

- app.UIFigure
  - app.InputFileMenu
    - app.HazardInformationMenu
    - app.ComponentFragilityInformationMer
    - app.SystemEquationInformationMenu
  - app.SettingsMenu
    - app.IntensityInitialMenu
    - app.IntensityLastMenu
    - app.IntensitySubdivisionMenu
    - app.NumberofSamplesforEachIntensityM
    - app.SolverMenu
      - app.BooleanAlgebraUMBMenu
      - app.OrginalDQFMMenu
      - app.ImprovedDQFMMenu
  - app.ResultsMenu
    - app.HazardCurvesMenu
    - app.ComponentFragilityCurvesMenu
    - app.SystemFragilityCurvesMenu

App | 콜백

검색

공유 세부 정보

이름 app2_updated4

버전 1.0

작성자

앱 디자이너 - C:\Users\user\Desktop\WorkSpace\[논문작업]\(20251127) EHRA_SoftwareX\EHRA MATLAB GUI APP\EHRA_v1.mlapp

디자이너 | 편집기 | 보기

저장 | 비교 대상 | 인쇄 | 이동 | 찾기 | 책갈피 | 탐색 | 콜백 | 함수 | 속성 | 앱 입력 인수 | 앱 도움말 텍스트 | 삽입 | 주석 | 들여쓰기 | 코드 | 실행 | 스텝 | 중지 | 실행

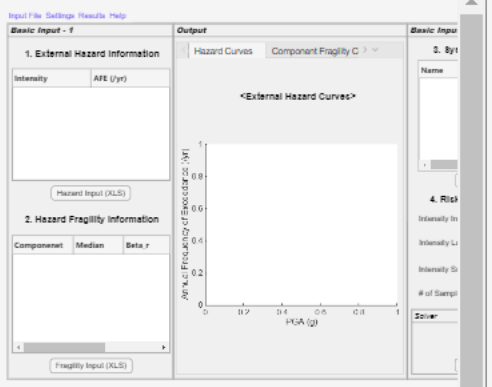
코드 브라우저

콜백 | 함수 | 속성

검색

- startupFcn
- HazardInputXLSButtonPushed
- FragilityInputXLSButtonPushed
- SytemEquationXLSButtonPushed
- OriginalDQFMButtonPushed
- PGAInitalEditFieldValueChanged
- PGALastEditFieldValueChanged
- PGASubdivisionEditFieldValueChanged
- ofSamplesforEachPGAEditFieldValueChanged
- UIAxesButtonDown
- UIAxes2ButtonDown
- ImprovedDQFMScalingButtonPushed

앱 레이아웃



EHRA_v1.mlapp

MATLAB 앱 | 디자인 보기 | 코드 보기

```
1   classdef EHRA_v1 < matlab.apps.AppBase
2
3       % Properties that correspond to app components
4       properties (Access = public) ...
69
70      % Properties that correspond to apps with auto-reflow
71      properties (Access = private)
72          onePanelWidth = 576;
73          twoPanelWidth = 768;
74      end
75
76
77      properties (Access = private)
78          PGA_I % PGA Initial
79          PGA_L % PGA Last
80          PGA_S % PGA Subdivision
81          NSEP  % Number of Samples for each PGA
82
83          PGA   % PGA vector
84          PF_C  % Component Fragilities
85          PF_S  % System Fragilities
86          Risk  % System Risk
87      end
88
89
90      % Callbacks that handle component events
91      methods (Access = private)
92
93          % Code that executes after component creation
94          function startupFcn(app)
95              app.PGA_I = app.IntensityInitalEditField.Value;
96              app.PGA_L = app.IntensityLastEditField.Value;
97              app.PGA_S = app.IntensitySubdivisionEditField.Value;
98              app.NSEP = app.ofSamplesforEachIntensityEditField.Value;
99
```

컴포넌트 브라우저

검색 | 보기:

- EHRA_v1
  - app.UIFigure
    - app.InputFileMenu
      - app.HazardInformationMenu
      - app.ComponentFragilityInformationMer
      - app.SystemEquationInformationMenu
    - app.SettingsMenu
      - app.IntensityInitialMenu
      - app.IntensityLastMenu
      - app.IntensitySubdivisionMenu
      - app.NumberofSamplesforEachIntensityM
      - app.SolverMenu
        - app.BooleanAlgebraUMBMenu
        - app.OrginalDQFMMenu
        - app.ImprovedDQFMMenu
    - app.ResultsMenu
      - app.HazardCurvesMenu
      - app.ComponentFragilityCurvesMenu
      - app.SystemFragilityCurvesMenu

App | 콜백

검색

공유 세부 정보

이름	app2_updated4
버전	1.0
작성자	

앱 디자이너 - C:\Users\user\Desktop\WorkSpace\[논문작업]\(20251127) EHRA_SoftwareX\EHRA MATLAB GUI APP\EHRA_v1.mlapp

디자이너 | 편집기 | 보기

저장 | 비교 대상 | 인쇄 | 이동 | 찾기 | 책갈피 | 콜백 | 함수 | 속성 | 앱 입력 인수 | 앱 도움말 텍스트 | 주석 | 들여쓰기 | 실행 | 스텝 | 중지

탐색 | 삽입 | 코드 | 실행

Click

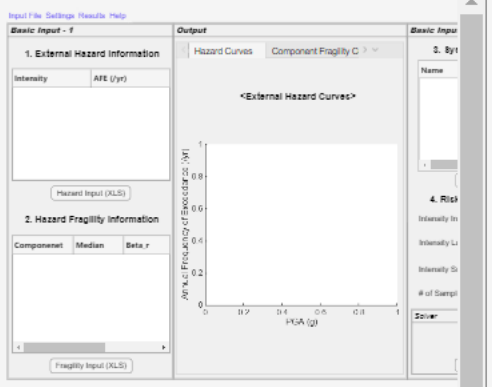
코드 브라우저

콜백 | 함수 | 속성

검색

- startupFcn
- HazardInputXLSButtonPushed
- FragilityInputXLSButtonPushed
- SytemEquationXLSButtonPushed
- OriginalDQFMButtonPushed
- PGAInitalEditFieldValueChanged
- PGALastEditFieldValueChanged
- PGASubdivisionEditFieldValueChanged
- ofSamplesforEachPGAEditFieldValueChanged
- UIAxesButtonDown
- UIAxes2ButtonDown
- ImprovedDQFMScalingButtonPushed

앱 레이아웃



EHRA_v1.mlapp

MATLAB 앱 | 디자인 보기 | 코드 보기

```
1   classdef EHRA_v1 < matlab.apps.AppBase
2
3       % Properties that correspond to app components
4       properties (Access = public) ...
69
70      % Properties that correspond to apps with auto-reflow
71      properties (Access = private)
72          onePanelWidth = 576;
73          twoPanelWidth = 768;
74      end
75
76
77      properties (Access = private)
78          PGA_I % PGA Initial
79          PGA_L % PGA Last
80          PGA_S % PGA Subdivision
81          NSEP  % Number of Samples for each PGA
82
83          PGA   % PGA vector
84          PF_C  % Component Fragilities
85          PF_S  % System Fragilities
86          Risk  % System Risk
87      end
88
89
90      % Callbacks that handle component events
91      methods (Access = private)
92
93          % Code that executes after component creation
94          function startupFcn(app)
95              app.PGA_I = app.IntensityInitalEditField.Value;
96              app.PGA_L = app.IntensityLastEditField.Value;
97              app.PGA_S = app.IntensitySubdivisionEditField.Value;
98              app.NSEP = app.ofSamplesforEachIntensityEditField.Value;
99
```

컴포넌트 브라우저

검색 | 보기:

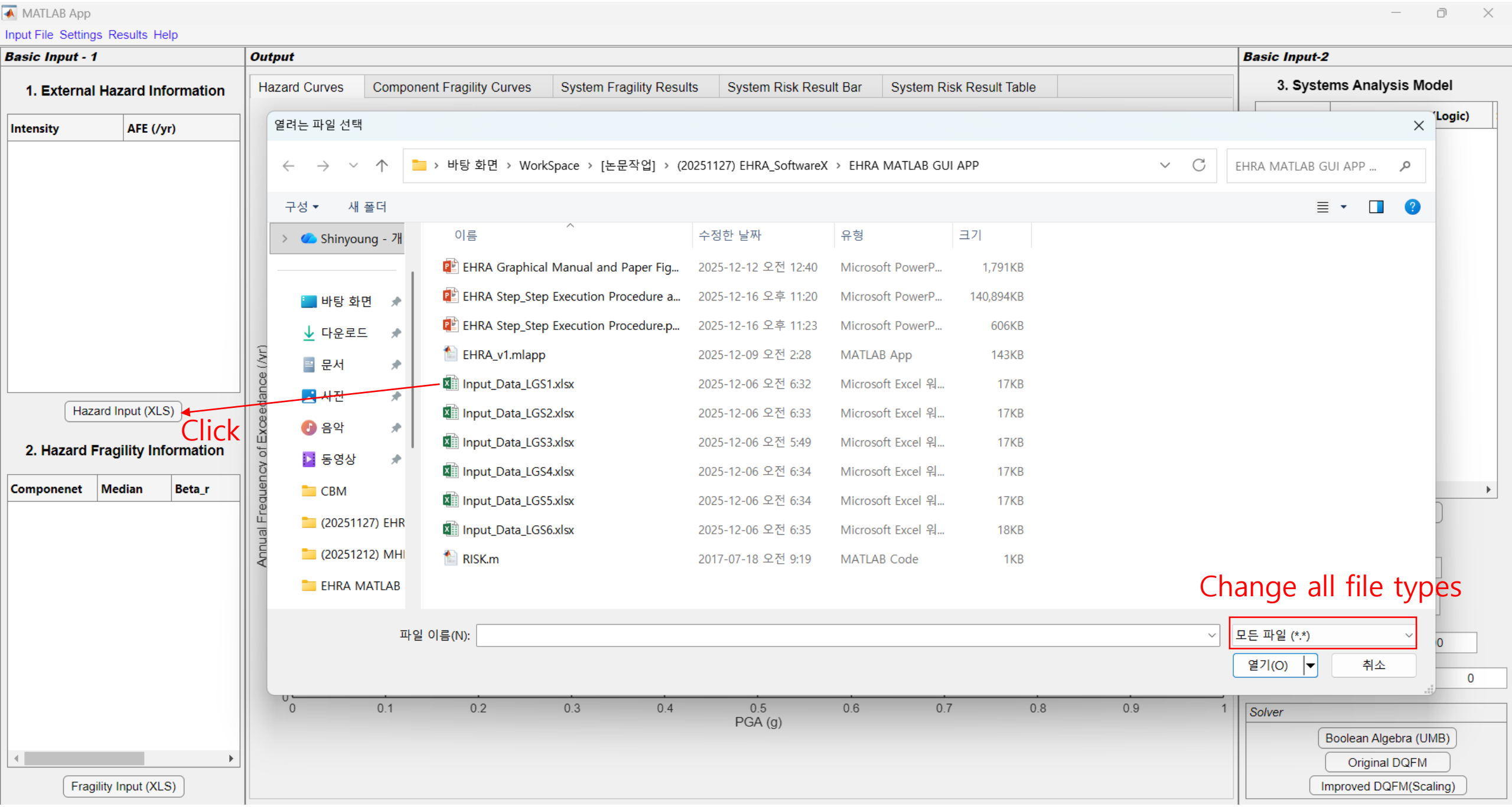
- EHRA_v1
  - app.UIFigure
    - app.InputFileMenu
      - app.HazardInformationMenu
      - app.ComponentFragilityInformationMer
      - app.SystemEquationInformationMenu
    - app.SettingsMenu
      - app.IntensityInitialMenu
      - app.IntensityLastMenu
      - app.IntensitySubdivisionMenu
      - app.NumberofSamplesforEachIntensityM
      - app.SolverMenu
        - app.BooleanAlgebraUMBMenu
        - app.OrginalDQFMMenu
        - app.ImprovedDQFMMenu
    - app.ResultsMenu
      - app.HazardCurvesMenu
      - app.ComponentFragilityCurvesMenu
      - app.SystemFragilityCurvesMenu

App | 콜백

검색

공유 세부 정보

이름	app2_updated4
버전	1.0
작성자	


MATLAB App
Input File Settings Results Help
Basic Input - 1
1. External Hazard Information
Intensity
AFE (/yr)
Hazard Input (XLS)
Click
2. Hazard Fragility Information
Componenet
Median
Beta_r
Fragility Input (XLS)
Output
Hazard Curves
Component Fragility Curves
System Fragility Results
System Risk Result Bar
System Risk Result Table
Annual Frequency of Exceedance (/yr)
PGA (g)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Basic Input-2
3. Systems Analysis Model
Logic)
Solver
Boolean Algebra (UMB)
Original DQFM
Improved DQFM(Scaling)
열려는 파일 선택
바탕 화면 › WorkSpace › [논문작업] › (20251127) EHRA_SoftwareX › EHRA MATLAB GUI APP
EHRA MATLAB GUI APP ...
구성
새 폴더
Shinyoung - 개
바탕 화면
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문서
사진
음악
동영상
CBM
(20251127) EHR
(20251212) MHI
EHRA MATLAB
이름
수정한 날짜
유형
크기
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Input_Data_LGS4.xlsx 2025-12-06 오전 6:34 Microsoft Excel 워... 17KB
Input_Data_LGS5.xlsx 2025-12-06 오전 6:34 Microsoft Excel 워... 17KB
Input_Data_LGS6.xlsx 2025-12-06 오전 6:35 Microsoft Excel 워... 18KB
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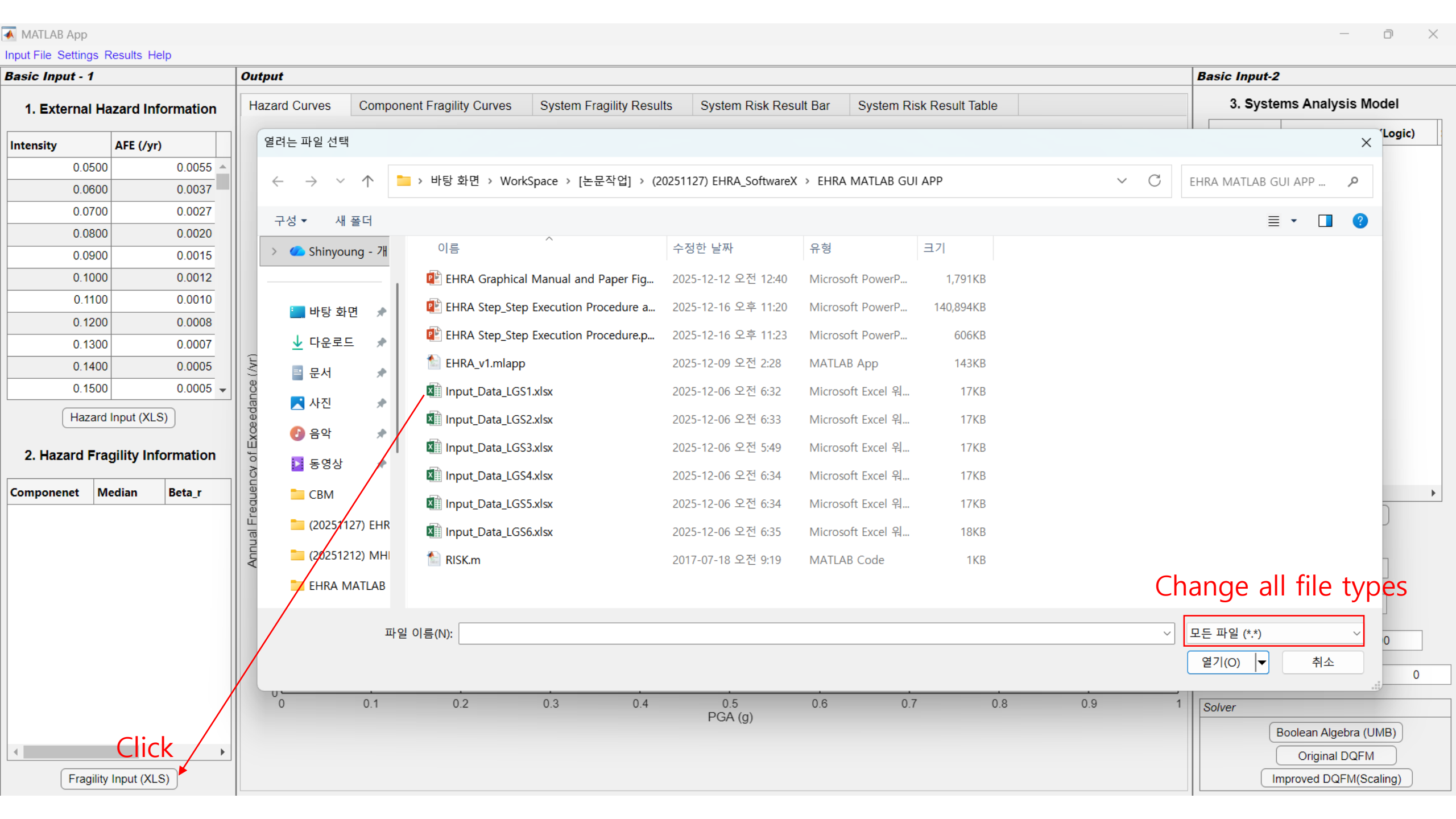
Change all file types
파일 이름(N):
모든 파일 (*.*)
열기(O)
취소


MATLAB App
Input File Settings Results Help
Basic Input - 1
1. External Hazard Information
Intensity
AFE (/yr)
0.0500 0.0055
0.0600 0.0037
0.0700 0.0027
0.0800 0.0020
0.0900 0.0015
0.1000 0.0012
0.1100 0.0010
0.1200 0.0008
0.1300 0.0007
0.1400 0.0005
0.1500 0.0005
Hazard Input (XLS)
2. Hazard Fragility Information
Componenet
Median
Beta_r
Click
Fragility Input (XLS)
Output
Hazard Curves
Component Fragility Curves
System Fragility Results
System Risk Result Bar
System Risk Result Table
Annual Frequency of Exceedance (/yr)
PGA (g)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
열려는 파일 선택
바탕 화면 › WorkSpace › [논문작업] › (20251127) EHRA_SoftwareX › EHRA MATLAB GUI APP
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(20251127) EHR
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Input_Data_LGS6.xlsx 2025-12-06 오전 6:35 Microsoft Excel 워... 18KB
RISK.m 2017-07-18 오전 9:19 MATLAB Code 1KB
Change all file types
파일 이름(N):
모든 파일 (*.*)
열기(O)
취소
Basic Input-2
3. Systems Analysis Model
Logic)
Solver
Boolean Algebra (UMB)
Original DQFM
Improved DQFM(Scaling)

MATLAB App

Input File Settings Results Help

Basic Input - 1

1. External Hazard Information

Intensity	AFE (/yr)
0.0500	0.0055
0.0600	0.0037
0.0700	0.0027
0.0800	0.0020
0.0900	0.0015
0.1000	0.0012
0.1100	0.0010
0.1200	0.0008
0.1300	0.0007
0.1400	0.0005
0.1500	0.0005

Hazard Input (XLS)

2. Hazard Fragility Information

Componenet
C1: S1 Offsite power
C2: S2 CST
C3: S3 Reactor internals
C4: S4 Reactor enclosure structure
C5: S6 Reactor pressure vessel
C6: S10 SLC tank
C7: S11 440-V bus/SG breakers
C8: S12 440-V bus transformer breaker
C9: S13 125/250-V DC bus
C10: S14 4-kV bus/SG
C11: S15 Diesel generator circuit

Fragility Input (XLS)

Output

Hazard Curves | Component Fragility Curves | System Fragility Results | System Risk Result Bar | System Risk Result Table

열려는 파일 선택

« WorkSpace › [논문작업] › (20251127) EHRA_SoftwareX › EHRA MATLAB GUI APP

EHRA MATLAB GUI APP ...

구성 새 폴더

Shinyoung - 개

바탕 화면
다운로드
문서
사진
음악
동영상
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EHRA MATLAB

이름	수정한 날짜	유형	크기
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Input_Data_LGS2.xlsx	2025-12-06 오전 6:33	Microsoft Excel 워...	17KB
Input_Data_LGS3.xlsx	2025-12-06 오전 5:49	Microsoft Excel 워...	17KB
Input_Data_LGS4.xlsx	2025-12-06 오전 6:34	Microsoft Excel 워...	17KB
Input_Data_LGS5.xlsx	2025-12-06 오전 6:34	Microsoft Excel 워...	17KB
Input_Data_LGS6.xlsx	2025-12-06 오전 6:35	Microsoft Excel 워...	18KB
RISK.m	2017-07-18 오전 9:19	MATLAB Code	1KB

Change all file types

파일 이름(N):

모든 파일 (*.*)

열기(O) 취소

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

PGA (g)

Basic Input-2

3. Systems Analysis Model

Name	System Equations(Logic)

Click

Sytem Equation (XLS)

4. Risk Quantification

Intensity Inital 0.000

Intensity Last 0.000

Intensity Subdivision 0.000

# of Samples for Each Intensity 0

Solver

Boolean Algebra (UMB)

Original DQFM

Improved DQFM(Scaling)

MATLAB App

Input File Settings Results Help

Basic Input - 1

1. External Hazard Information

Intensity	AFE (/yr)
0.0500	0.0055
0.0600	0.0037
0.0700	0.0027
0.0800	0.0020
0.0900	0.0015
0.1000	0.0012
0.1100	0.0010
0.1200	0.0008
0.1300	0.0007
0.1400	0.0005
0.1500	0.0005

Hazard Input (XLS)

2. Hazard Fragility Information

Componenet
C1: S1 Offsite power
C2: S2 CST
C3: S3 Reactor internals
C4: S4 Reactor enclosure structure
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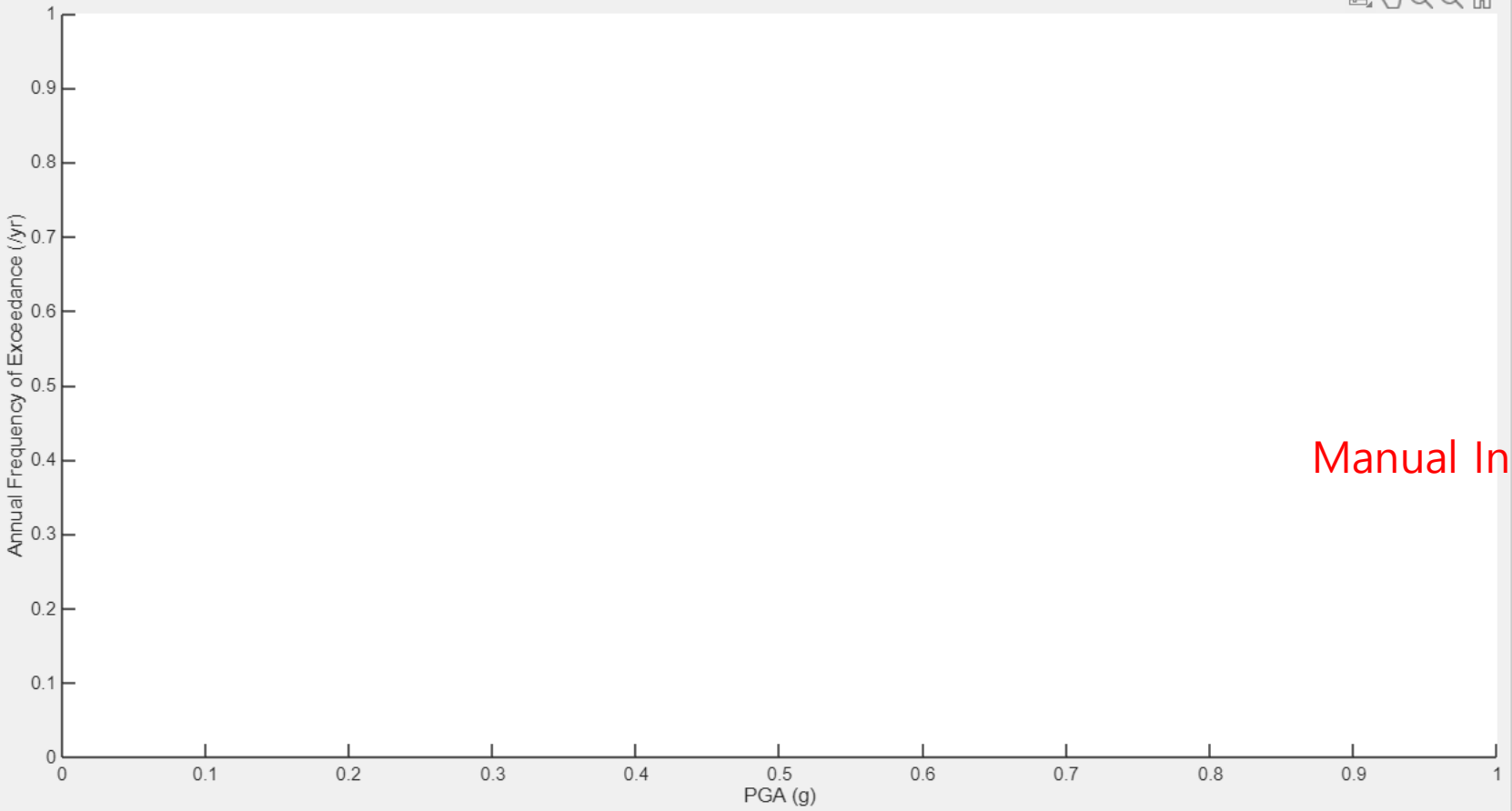
C6: S10 SLC tank
C7: S11 440-V bus/SG breakers
C8: S12 440-V bus transformer breaker
C9: S13 125/250-V DC bus
C10: S14 4-kV bus/SG
C11: S15 Diesel generator circuit

Fragility Input (XLS)

Output

Hazard Curves | Component Fragility Curves | System Fragility Results | System Risk Result Bar | System Risk Result Table

<External Hazard Curves>



Basic Input-2

3. Systems Analysis Model

Name	System Equations(Logic)
TEUX	C(:,1) & (C(:,7) | C(:,8) | C(:,9)
TRpv	C(:,5)
TRb	C(:,4)
TECC	C(:,1) & (C(:,3)|RF(:,3)) & ((C(:
TRC	C(:,4) & (RF(:,3)|C(:,3))
TEW	C(:,1) & ~(C(:,7) | C(:,8) | C(:,9
CM	C(:,4) | C(:,5) | C(:,1) & ((C(:,7)

System Equation (XLS)

Manual Input and Click Solver

4. Risk Quantification

Intensity Inital 0.050

Intensity Last 2.000

Intensity Subdivision 0.010

# of Samples for Each Intensity 10000

Solver

Boolean Algebra (UMB)

Original DQFM

Improved DQFM(Scaling)

MATLAB App

Input File Settings Results Help

Check Results

Basic Input - 1

1. External Hazard Information

Intensity	AFE (/yr)
0.0500	0.0055
0.0600	0.0037
0.0700	0.0027
0.0800	0.0020
0.0900	0.0015
0.1000	0.0012
0.1100	0.0010
0.1200	0.0008
0.1300	0.0007
0.1400	0.0005
0.1500	0.0005

Hazard Input (XLS)

2. Hazard Fragility Information

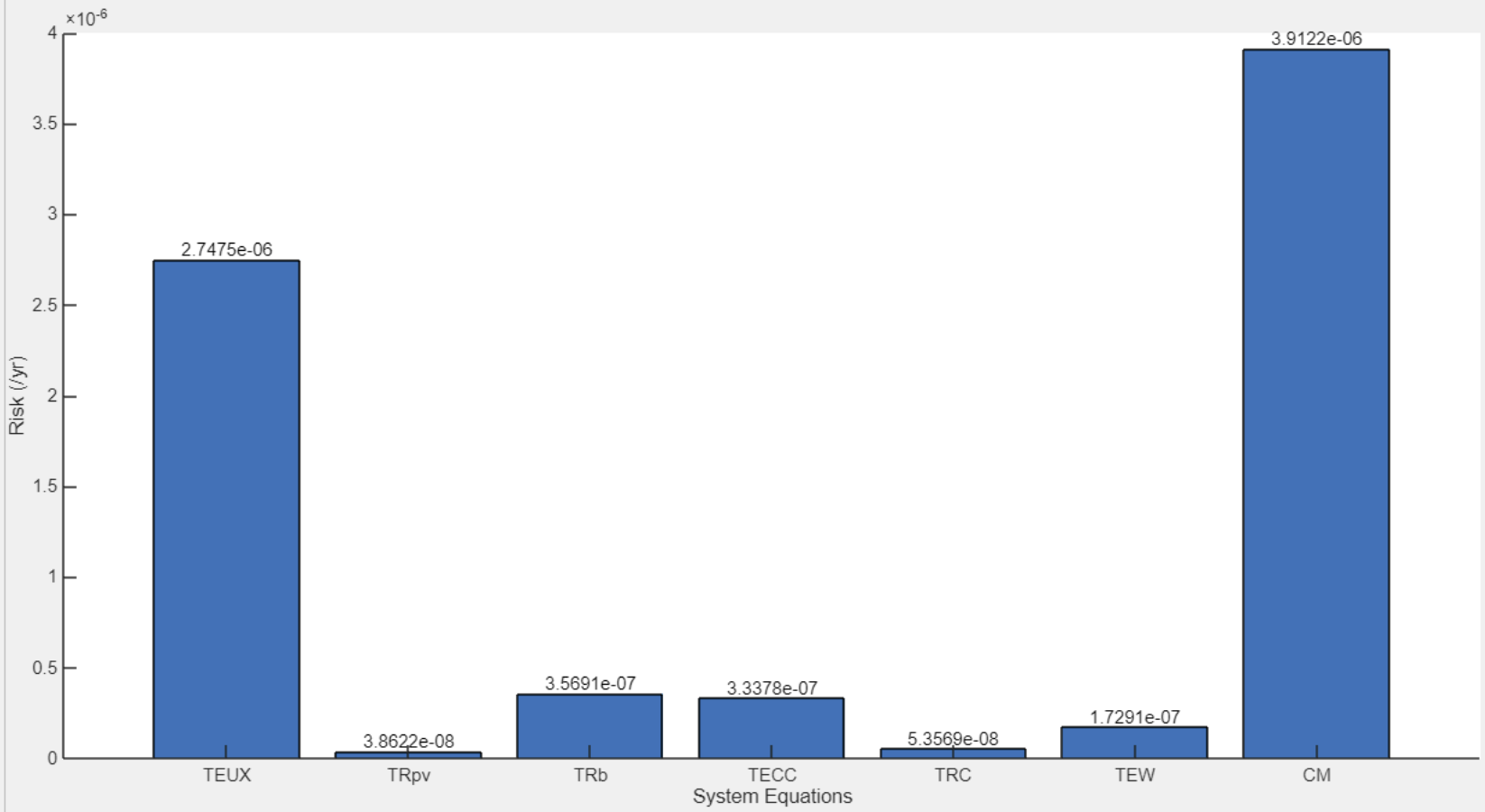
Componenet
C1: S1 Offsite power
C2: S2 CST
C3: S3 Reactor internals
C4: S4 Reactor enclosure structure
C5: S6 Reactor pressure vessel
C6: S10 SLC tank
C7: S11 440-V bus/SG breakers
C8: S12 440-V bus transformer breaker
C9: S13 125/250-V DC bus
C10: S14 4-kV bus/SG
C11: S15 Diesel generator circuit

Fragility Input (XLS)

Output

Hazard Curves | Component Fragility Curves | System Fragility Results | System Risk Result Bar | System Risk Result Table

<System Risk Result Bar>



Basic Input-2

3. Systems Analysis Model

Name	System Equations(Logic)
TEUX	C(:,1) & (C(:,7) | C(:,8) | C(:,9)
TRpv	C(:,5)
TRb	C(:,4)
TECC	C(:,1) & (C(:,3)|RF(:,3)) & ((C(:
TRC	C(:,4) & (RF(:,3)|C(:,3))
TEW	C(:,1) & ~(C(:,7) | C(:,8) | C(:,9
CM	C(:,4) | C(:,5) | C(:,1) & ((C(:,7)

Sytem Equation (XLS)

4. Risk Quantification

Intensity Inital 0.050

Intensity Last 2.000

Intensity Subdivision 0.010

# of Samples for Each Intensity 10000

Solver

Boolean Algebra (UMB)

Original DQFM

Improved DQFM(Scaling)