Shih Hsin University

AACSB ACCREDITED

NTPU 國立臺北大學 National Taipei University

Sharing Teaching Experiences in EMI Courses and Project-based Learning (PBL)

2023/5/22 (Monday) 13:00 - 15:00
Host: Prof. Yu-Chin Liu
Information Management, College of Management, Shih Hsin University (SHU)
2F, No. 111, Muzha Road, Section 1, Wenshan District, Taipei, Taiwan

aws educate | Cloud Ambassador 2020 Cohort

aws academy Accredited Educator

aws certified Cloud Practitioner

aws certified Solutions Architect Associate

Min-Yuh Day, Ph.D,
Associate Professor

Institute of Information Management, National Taipei University

https://web.ntpu.edu.tw/~myday

2023-05-22

國立臺北大學
National Taipei University

戴敏育 博士

Min-Yuh Day, Ph.D.

aws educate | Cloud Ambassador
2020 Cohort

aws academy
Accredited Educator

aws certified
Solutions Architect
Associate

aws certified
Cloud Practitioner

Associate Professor, Information Management, NTPU

Visiting Scholar, IIS, Academia Sinica

Ph.D., Information Management, NTU

Director, Intelligent Financial Innovation Technology, IFIT Lab, IM, NTPU

Associate Director, Fintech and Green Finance Center, NTPU

Publications Co-Chairs, IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2013-)

Program Co-Chair, IEEE International Workshop on Empirical Methods for Recognizing Inference in TExt (IEEE EM-RITE 2012-)

Publications Chair, The IEEE International Conference on Information Reuse and Integration for Data Science (IEEE IRI 2007-)

國立臺北大學
National Taipei University

中央研究院 ACADEMIA SINICA 1928

2023 NTPU 永續月 【SDGS永續沙龍】

生成式AI在永續發展的應用

Generative AI and ChatGPT for ESG and Sustainable Development

Time: 2023.04.27 (Thu) 12:10-13:30
Place: USR HUB, Office of Sustainability, NTPU
Host: Office of Sustainability, NTPU
https://forms.gle/vYVvYBT6y1ik4RtN7

aws educate Cloud Ambassador 2020 Cohort

aws academy Accredited Educator

aws certified Cloud Practitioner

aws certified Solutions Architect Associate

戴敏育 永續辦公室 社會責任組 組長

Min-Yuh Day, Ph.D, Associate Professor

Institute of Information Management, National Taipei University

https://web.ntpu.edu.tw/~myday

2023-04-27

Outline

- EMI Teacher Community, AACSB, NTPU
- Teaching Experiences Sharing
- EMI Courses
- Project-based Learning (PBL)

EMI Teacher Community II
AACSB, NTPU

2022-2023

EMI Teacher Community Activities

- 1. 2022/05/05 (Thursday) 12:00 pm-13:00 pm, B302
  - **Teaching Experiences Sharing of EMI Courses in AI for Business Applications**
  - **Min-Yuh Day**, National Taipei University,
- 2. 2022/05/11 (Wednesday) 9:10 am - 12:00 pm, Google Meet ONLINE
  - **Agile Principles Patterns and Practices in FinTech and Digital Transformation**
  - **Shihyu (Alex) Chu**, Senior Industry Analyst/Program Manager, Market Intelligence & Consulting Institute (MIC)
- 3. 2022/05/11 (Wednesday) 12:10 pm - 13:00 pm, Google Meet ONLINE
  - **Professional Business Presentations in English**
  - **Shihyu (Alex) Chu**, Senior Industry Analyst/Program Manager, Market Intelligence & Consulting Institute (MIC)
- 4. 2022/05/18 (Wednesday) 12:10 pm - 13:00 pm, Google Meet ONLINE
  - **Web 3: From DeFi to WoFi**
  - **Prof. Shih-wei Liao**, National Taiwan University
- 5. 2022/05/27 (Friday) 12:00 pm - 13:00 pm, Google Meet ONLINE
  - **Experiences Sharing of NTPU EMI Teaching Community II**
  - **Professors of EMI Teaching Community II**, National Taipei University

EMI Teacher Community, AACSB, NTPU

1 Spring 2022

Teaching Experiences Sharing of EMI Courses in AI for Business Applications

2022/5/5 (Thursday) 12:10 - 13:00
B302, AACSB, National Taipei University

https://meet.google.com/zuc-yyaw-mnt

Min-Yuh Day, Ph.D,
Associate Professor

Institute of Information Management, National Taipei University

https://web.ntpu.edu.tw/~myday

2022-05-05

FinTech x EMI AACSB NTPU

2 Spring 2022

Agile Principles Patterns and Practices in FinTech and Digital Transformation

Shihyu (Alex) Chu

Senior Industry Analyst/Program Manager

Market Intelligence & Consulting Institute (MIC)

https://meet.google.com/ish-gzmy-pmo

9:10 - 12:00, May 11, 2022

(Wednesday)

FinTech x EMI AACSB NTPU

3 Spring 2022

Professional Business Presentations in English

Shihyu (Alex) Chu

Senior Industry Analyst/Program Manager

Market Intelligence & Consulting Institute (MIC)

http://meet.google.com/uag-vmjj-vff

12:10 - 13:00, May 11, 2022

(Wednesday)

FinTech x EMI AACSB NTPU

4 Spring 2022

Web 3: From DeFi to WoFi

Prof. Shih-wei Liao

National Taiwan University

http://meet.google.com/uag-vmjj-vff

12:10 - 13:00, May 18, 2022

(Wednesday)

EMI AACSB NTPU

5 Spring 2022

Experiences Sharing of NTPU EMI Teaching Community II

Professors of EMI Teaching Community II

National Taipei University

http://meet.google.com/uag-vmjj-vff

12:00 - 13:00, May 27, 2022

(Friday)

EMI x FinTech x IM AACSB NTPU

國立臺北大學
National Taipei University

AACSB ACCREDITED

1 Fall 2022

FinTech for Social Good

Dr. Chung-Chi Chen

Researcher,
Artificial Intelligence Research Center,
National Institute of Advanced Industrial Science and Technology,
Japan

12:10 - 14:00, Oct. 19, 2022
(Wednesday)

https://meet.google.com/paj-zhhj-mya

EMI x FinTech x IM AACSB NTPU

2 Fall 2022

Matching Texts with Data for Evidence-based Information Retrieval

Prof. Makoto P. Kato

Faculty of Library, Information and Media Science

University of Tsukuba, Japan

9:10 - 12:00, Nov. 23, 2022

(Wednesday)

(Hybrid) B8F40, National Taipei University, Taiwan

https://meet.google.com/miy-fbif-max

EMI x FinTech x IM AACSB NTPU

3 Fall 2022

The Truth of Crypto & NFT Economy
(虛擬貨幣與NFT經濟老實說)

Mu Jou (周書丞)

CTO of Infinitas NFT

GM of Asiania

12:10 - 14:00, Nov. 30, 2022

(Wednesday)

(Hybrid) B3F02, National Taipei University, Taiwan

https://meet.google.com/paj-zhhj-mya

EMI x FinTech x IM AACSB NTPU

4 Fall 2022

Index Design – Methodology, Data Analysis and the Application of Quantitative Investing

Jervis J.G. Li

Fund Manager, Yuanta SITC

https://meet.google.com/paj-zhhj-mya

9:10 - 12:00, Dec. 6, 2022

(Tuesday)

(Hybrid) B8F40, National Taipei University, Taiwan

NTPU
國立臺北大學
National Taipei University

EMI x USR x FinTech x IM
AACSB NTPU

AACSB ACCREDITED

1 Spring 2023

Agile Principles Patterns and Practices using AI and ChatGPT

Shihyu (Alex) Chu

Division Director, Software Industry Research
Market Intelligence & Consulting Institute (MIC)

https://meet.google.com/ish-gzmy-pmo

9:10 - 12:00, May 17, 2023

(Wednesday)

(Hybrid) B8F40, National Taipei University, Taiwan

EMI x USR x FinTech x IM
AACSB NTPU

2 Spring 2023

國際碳中和產業趨勢與數位轉型永續發展
(International Carbon Neutral Industry Trends and Digital Transformation for Sustainable Development)

Shihyu (Alex) Chu (朱師右)
Division Director, Software Industry Research
Market Intelligence & Consulting Institute (MIC)

12:10 - 13:00, May 17, 2023
(Wednesday)
(Hybrid) B302, National Taipei University, Taiwan

https://meet.google.com/paj-zhhj-mya

Teaching Experiences Sharing

Teaching Experiences (EMI)

- **Artificial Intelligence for Text Analytics**
  - Spring 2022
- **Software Engineering**
  - Fall 2020, Fall, 2021, Spring 2022, Spring 2023
- **Artificial Intelligence in Finance and Quantitative**
  - Fall 2021, Fall 2022
- **Artificial Intelligence**
  - Spring 2021, Fall 2022
- **Data Mining**
  - Spring 2021
- **Big Data Analytics**
  - Fall 2020, Spring 2023
- **Foundation of Business Cloud Computing**
  - Spring 2021, Spring 2022, Spring 2023

https://web.ntpu.edu.tw/~myday/teaching.htm

Teaching Experiences (EMI)

- **AI in Finance Big Data Analytics (Fall 2019)**
  - MBA, DBETKU (3 Credits, Elective) [Full English Course] [Distance Learning]
- **Big Data Mining (Fall 2018)**
  - MBA, DBETKU (3 Credits, Required) [Full English Course]
- **Social Media Apps Programming (Fall 2013 - Fall 2018)**
  - MBA, IMTKU (2 Credits, Elective) [Full English Course]
  - Fall 2018, Fall 2017 , Fall 2016 , Fall 2015 , Fall 2014 , **Fall 2013**

https://web.ntpu.edu.tw/~myday/teaching.htm

EMI Courses in AI for Business Applications

EMI Courses in AI for Business Applications

- **Big Data Analysis**
  - Spring 2023
- **Software Engineering**
  - Spring 2023, Spring 2022
- **Artificial Intelligence**
  - Fall 2022
- **Artificial Intelligence in Finance and Quantitative Analysis**
  - Fall 2022
- **Artificial Intelligence for Text Analytics**
  - Spring 2022

https://web.ntpu.edu.tw/~myday/teaching.htm

Big Data Analysis

Introduction to Big Data Analysis

1112BDA01
MBA, IM, NTPU (M6031) (Spring 2023)
Tue 2, 3, 4 (9:10-12:00) (B8F40)

https://meet.google.com/paj-zhhj-mya

Min-Yuh Day, Ph.D,
Associate Professor

Institute of Information Management, National Taipei University

https://web.ntpu.edu.tw/~myday

2023-02-21

Course Syllabus
National Taipei University
Academic Year 111, 2nd Semester (Spring 2023)

- **Course Title: Big Data Analysis**
- **Instructor: Min-Yuh Day**
- **Course Class: MBA, IM, NTPU (3 Credits, Elective)**
- **Details**
  - **In-Class and Distance Learning EMI Course (3 Credits, Elective, One Semester) (M6031)**
- **Time & Place: Tue, 2, 3, 4, (9:10-12:00) (B8F40)**
- **Google Meet:** https://meet.google.com/paj-zhhj-mya

https://meet.google.com/paj-zhhj-mya

Course Objectives

1. Understand the fundamental concepts and research issues of Big Data Analysis.
2. Equip with Hands-on practices of Big Data Analysis.
3. Conduct information systems research in the context of Big Data Analysis.

Course Outline

- This course introduces the fundamental concepts, research issues, and hands-on practices of Big Data Analysis.
- Topics include:
  1. Introduction to Big Data Analysis
  2. AI, Data Science and Big Data Analysis
  3. Foundations of Big Data Analysis in Python
  4. Machine Learning: SAS Viya, Data Preparation and Algorithm Selection
  5. Machine Learning: Decision Trees and Ensembles of Trees
  6. Machine Learning: Neural Networks (NN) and Support Vector Machines (SVM)
  7. Machine Learning: Model Assessment and Deployment
  8. ChatGPT and Large Language Models (LLM) for Big Data Analysis
  9. Deep Learning for Finance Big Data Analysis
  10. Case Study on Big Data Analysis

Syllabus

Week	Date	Subject/Topics
1	2023/02/21	Introduction to Big Data Analysis
2	2023/02/28	(Day Off)
3	2023/03/07	AI, Data Science and Big Data Analysis
4	2023/03/14	Foundations of Big Data Analysis in Python
5	2023/03/21	Case Study on Big Data Analysis I
6	2023/03/28	Machine Learning: SAS Viya, Data Preparation and Algorithm Selection

Syllabus

Week	Date	Subject/Topics
7	2023/04/04	(Children's Day) (Day off)
8	2023/04/11	Midterm Project Report
9	2023/04/18	Machine Learning: Decision Trees and Ensembles of Trees
10	2023/04/25	Machine Learning: Neural Networks (NN) and Support Vector Machines (SVM)
11	2023/05/02	Case Study on Big Data Analysis II
12	2023/05/09	Machine Learning: Model Assessment and Deployment

Syllabus

Week	Date	Subject/Topics
13	2023/05/16	ChatGPT and Large Language Models (LLM) for Big Data Analysis
14	2023/05/23	Deep Learning for Finance Big Data Analysis
15	2023/05/30	Final Project Report I
16	2023/06/06	Final Project Report II
17	2023/06/13	Self-learning
18	2023/06/20	Self-learning

Teaching Methods and Activities

- Lecture
- Discussion
- Practicum

Evaluation Methods

- Individual Presentation 60 %
- Group Presentation 10 %
- Case Report 10 %
- Class Participation 10 %
- Assignment 10 %

Software Engineering

NTPU
國立臺北大學
National Taipei University

Introduction to Software Engineering

1112SE01
MBA, IM, NTPU (M5010) (Spring 2023)
Wed 2, 3, 4 (9:10-12:00) (B8F40)

https://meet.google.com/ish-gzmy-pmo

aws educate | Cloud Ambassador
2020 Cohort

aws academy Accredited Educator
aws certified Cloud Practitioner
aws certified Solutions Architect Associate

Min-Yuh Day, Ph.D,
Associate Professor

Institute of Information Management, National Taipei University

https://web.ntpu.edu.tw/~myday

2023-02-22

Course Syllabus
National Taipei University
Academic Year 111, 2nd Semester (Spring 2023)

- **Course Title: Software Engineering**
- **Instructor: Min-Yuh Day**
- **Course Class: MBA, IM, NTPU (3 Credits, Elective)**
- **Details**
  - **In-Person and Distance Learning EMI Course (3 Credits, Elective, One Semester) (M5010)**
- **Time & Place: Wed, 2, 3, 4, (9:10-12:00) (B8F40)**
- **Google Meet:** https://meet.google.com/ish-gzmy-pmo

https://meet.google.com/ish-gzmy-pmo

Course Objectives

1. Understand the fundamental concepts and research issues of software engineering.
2. Equip with Hands-on practices of software engineering.
3. Conduct information systems research in the context of software engineering.

Course Outline

- **This course introduces the fundamental concepts, research issues, and hands-on practices of software engineering.**
- **Topics include:**
  1. Introduction to Software Engineering
  2. Software Products and Project Management: Software product management and prototyping
  3. Agile Software Engineering: Agile methods, Scrum, and Extreme Programming
  4. Features, Scenarios, and Stories
  5. Software Architecture: Architectural design, System decomposition, and Distribution architecture
  6. Cloud-Based Software: Virtualization and containers, Everything as a service, Software as a service
  7. Cloud Computing and Cloud Software Architecture
  8. Microservices Architecture, RESTful services, Service deployment
  9. Security and Privacy; Reliable Programming
  10. Testing: Functional testing, Test automation, Test-driven development, and Code reviews
  11. DevOps and Code Management: Code management and DevOps automation
  12. Case Study on Software Engineering

Syllabus

Week	Date	Subject/Topics
1	2023/02/22	Introduction to Software Engineering
2	2023/03/01	Software Products and Project Management: Software product management and prototyping
3	2023/03/08	Agile Software Engineering: Agile methods, Scrum, and Extreme Programming
4	2023/03/15	Features, Scenarios, and Stories
5	2023/03/22	Case Study on Software Engineering I
6	2023/03/29	Software Architecture: Architectural design, System decomposition, and Distribution architecture

Syllabus

Week	Date	Subject/Topics
7	2023/04/05	Tomb-Sweeping Day (Holiday, No Classes)
8	2023/04/12	Midterm Project Report
9	2023/04/19	Cloud-Based Software: Virtualization and containers, Everything as a service, Software as a service
10	2023/04/26	Cloud Computing and Cloud Software Architecture
11	2023/05/03	Microservices Architecture, RESTful services, Service deployment
12	2023/05/10	Security and Privacy; Reliable Programming; Testing: Test-driven development, and Code reviews; DevOps and Code Management: DevOps automation

Syllabus

Week	Date	Subject/Topics
13	2023/05/17	Industry Practices of Software Engineering [Agile Principles Patterns and Practices using AI and ChatGPT, Invited Speaker: Shihyu (Alex) Chu, Division Director, Software Industry Research Center, Market Intelligence & Consulting Institute (MIC)]
14	2023/05/24	Case Study on Software Engineering II
15	2023/05/31	Final Project Report I
16	2023/06/07	Final Project Report II
17	2023/06/14	Self-learning
18	2023/06/21	Self-learning

NTPU
國立臺北大學
National Taipei University

Introduction to Artificial Intelligence in Finance and Quantitative Analysis

1111AIFQA01
MBA, IM, NTPU (M6132) (Fall 2022)
Tue 2, 3, 4 (9:10-12:00) (B8F40)

https://meet.google.com/paj-zhhj-mya

aws educate Cloud Ambassador 2020 Cohort

aws academy Accredited Educator

aws certified Cloud Practitioner

aws certified Solutions Architect Associate

Min-Yuh Day, Ph.D,
Associate Professor

Institute of Information Management, National Taipei University

https://web.ntpu.edu.tw/~myday

2022-09-13

Course Syllabus
National Taipei University
Academic Year 111, 1st Semester (Fall 2022)

- **Course Title: Artificial Intelligence in Finance and Quantitative Analysis**
- **Instructor: Min-Yuh Day**
- **Course Class: MBA, IM, NTPU (3 Credits, Elective)**
- **Details**
  - **In-Class and Distance Learning EMI Course (3 Credits, Elective, One Semester) (M6132)**
- **Time & Place: Tue, 2, 3, 4, (9:10-12:00) (B8F40)**
- **Google Meet:** https://meet.google.com/paj-zhhj-mya

https://meet.google.com/paj-zhhj-mya

Course Objectives

1. Understand the fundamental concepts and research issues of Artificial Intelligence in Finance and Quantitative Analysis.
2. Equip with Hands-on practices of Artificial Intelligence in Finance and Quantitative Analysis.
3. Conduct information systems research in the context of Artificial Intelligence in Finance and Quantitative Analysis.

Course Outline

- This course introduces the fundamental concepts, research issues, and hands-on practices of AI in Finance and Quantitative Analysis.
- Topics include:
  1. Introduction to Artificial Intelligence in Finance and Quantitative Analysis
  2. AI in FinTech: Metaverse, Web3, DeFi, NFT, Financial Services Innovation and Applications
  3. Investing Psychology and Behavioral Finance
  4. Event Studies in Finance
  5. Finance Theory
  6. Data-Driven Finance
  7. Financial Econometrics
  8. AI-First Finance
  9. Deep Learning in Finance
  10. Reinforcement Learning in Finance
  11. Algorithmic Trading, Risk Management, Trading Bot and Event-Based Backtesting
  12. Case Study on AI in Finance and Quantitative Analysis.

Syllabus

Week	Date	Subject/Topics
1	2022/09/13	Introduction to Artificial Intelligence in Finance and Quantitative Analysis
2	2022/09/20	AI in FinTech: Metaverse, Web3, DeFi, NFT, Financial Services Innovation and Applications
3	2022/09/27	Investing Psychology and Behavioral Finance
4	2022/10/04	Event Studies in Finance
5	2022/10/11	Case Study on AI in Finance and Quantitative Analysis I
6	2022/10/18	Finance Theory

Syllabus

Week	Date	Subject/Topics
7	2022/10/25	Data-Driven Finance
8	2022/11/01	Midterm Project Report
9	2022/11/08	Financial Econometrics
10	2022/11/15	AI-First Finance
11	2022/11/22	Industry Practices of AI in Finance and Quantitative Analysis
12	2022/11/29	Case Study on AI in Finance and Quantitative Analysis II

Syllabus

Week	Date	Subject/Topics
13	2022/12/06	Deep Learning in Finance; Reinforcement Learning in Finance
14	2022/12/13	Algorithmic Trading; Risk Management; Trading Bot and Event-Based Backtesting
15	2022/12/20	Final Project Report I
16	2022/12/27	Final Project Report II
17	2023/01/03	Self-learning
18	2023/01/10	Self-learning

Artificial Intelligence

Introduction to Artificial Intelligence

1111AI01
MBA, IM, NTPU (M6132) (Fall 2022)
Wed 2, 3, 4 (9:10-12:00) (B8F40)

https://meet.google.com/miy-fbif-max

Min-Yuh Day, Ph.D,
Associate Professor

Institute of Information Management, National Taipei University

https://web.ntpu.edu.tw/~myday

2022-09-14

Course Syllabus
National Taipei University
Academic Year 111, 1st Semester (Fall 2022)

- **Course Title: Artificial Intelligence**
- **Instructor: Min-Yuh Day**
- **Course Class: MBA, IM, NTPU (3 Credits, Elective)**
- **Details**
  - **In-Class and Distance Learning EMI Course (3 Credits, Elective, One Semester) (M6132)**
- **Time & Place: Wed, 2, 3, 4, (9:10-12:00) (B8F40)**
- **Google Meet:** https://meet.google.com/miy-fbif-max

https://meet.google.com/miy-fbif-max

Course Objectives

1. Understand the fundamental concepts and research issues of Artificial Intelligence.
2. Equip with Hands-on practices of Artificial Intelligence.
3. Conduct information systems research in the context of Artificial Intelligence.

Course Outline

- This course introduces the fundamental concepts, research issues, and hands-on practices of Artificial Intelligence.
- Topics include:
  1. Introduction to Artificial Intelligence
  2. Artificial Intelligence and Intelligent Agents
  3. Problem Solving
  4. Knowledge, Reasoning and Knowledge Representation, Uncertain Knowledge and Reasoning
  5. Machine Learning: Supervised and Unsupervised Learning
  6. The Theory of Learning and Ensemble Learning
  7. Deep Learning, Reinforcement Learning
  8. Deep Learning for Natural Language Processing
  9. Computer Vision and Robotics
  10. Philosophy and Ethics of AI and the Future of AI
  11. Case Study on AI

Syllabus

Week	Date	Subject/Topics
1	2022/09/14	Introduction to Artificial Intelligence
2	2022/09/21	Artificial Intelligence and Intelligent Agents
3	2022/09/28	Problem Solving
4	2022/10/05	Knowledge, Reasoning and Knowledge Representation; Uncertain Knowledge and Reasoning
5	2022/10/12	Case Study on Artificial Intelligence I
6	2022/10/19	Machine Learning: Supervised and Unsupervised Learning

Syllabus

Week	Date	Subject/Topics
7	2022/10/26	The Theory of Learning and Ensemble Learning
8	2022/11/02	Midterm Project Report
9	2022/11/09	Deep Learning and Reinforcement Learning
10	2022/11/16	Deep Learning for Natural Language Processing
11	2022/11/23	Invited Talk: AI for Information Retrieval
12	2022/11/30	Case Study on Artificial Intelligence II

Syllabus

Week	Date	Subject/Topics
13	2022/12/07	Computer Vision and Robotics
14	2022/12/14	Philosophy and Ethics of AI and the Future of AI
15	2022/12/21	Final Project Report I
16	2022/12/28	Final Project Report II
17	2023/01/04	Self-learning
18	2023/01/11	Self-learning

NTPU
國立臺北大學
National Taipei University

Introduction to Artificial Intelligence for Text Analytics

1102AITA01
MBA, IM, NTPU (M5026) (Spring 2022)
Tue 2, 3, 4 (9:10-12:00) (B8F40)

https://meet.google.com/paj-zhhj-mya

aws educate | Cloud Ambassador
2020 Cohort

aws academy Accredited Educator
aws certified Cloud Practitioner
aws certified Solutions Architect Associate

Min-Yuh Day, Ph.D,
Associate Professor

Institute of Information Management, National Taipei University

https://web.ntpu.edu.tw/~myday

2022-02-22

Course Syllabus
National Taipei University
Academic Year 110, 2nd Semester (Spring 2022)

- **Course Title: Artificial Intelligence for Text Analytics**
- **Instructor: Min-Yuh Day**
- **Course Class: MBA, IM, NTPU (3 Credits, Elective)**
- **Details**
  - **In-Class and Distance Learning EMI Course (3 Credits, Elective, One Semester) (M5026)**
- **Time & Place: Tue, 2, 3, 4, (9:10-12:00) (B8F40)**
- **Google Meet:** https://meet.google.com/paj-zhhj-mya

https://meet.google.com/paj-zhhj-mya

Course Objectives

1. Understand the fundamental concepts and research issues of Artificial Intelligence for Text Analytics.
2. Equip with Hands-on practices of Artificial Intelligence for Text Analytics.
3. Conduct information systems research in the context of Artificial Intelligence for Text Analytics.

Course Outline

- This course introduces the fundamental concepts, research issues, and hands-on practices of Artificial Intelligence for Text Analytics.
- Topics include:
  1. Introduction to Introduction to Artificial Intelligence for Text Analytics
  2. Foundations of Text Analytics: Natural Language Processing (NLP)
  3. Python for Natural Language Processing
  4. Natural Language Processing with Transformers
  5. Text Classification and Sentiment Analysis
  6. Multilingual Named Entity Recognition (NER), Text Similarity and Clustering
  7. Text Summarization and Topic Models
  8. Text Generation
  9. Question Answering and Dialogue Systems
  10. Deep Learning, Transfer Learning, Zero-Shot, and Few-Shot Learning for Text Analytics
  11. Case Study on Artificial Intelligence for Text Analytics

Syllabus

Week	Date	Subject/Topics
1	2022/02/22	Introduction to Artificial Intelligence for Text Analytics
2	2022/03/01	Foundations of Text Analytics: Natural Language Processing (NLP)
3	2022/03/08	Python for Natural Language Processing
4	2022/03/15	Natural Language Processing with Transformers
5	2022/03/22	Case Study on Artificial Intelligence for Text Analytics I
6	2022/03/29	Text Classification and Sentiment Analysis

Syllabus

Week	Date	Subject/Topics
7	2022/04/05	Tomb-Sweeping Day (Holiday, No Classes)
8	2022/04/12	Midterm Project Report
9	2022/04/19	Multilingual Named Entity Recognition (NER), Text Similarity and Clustering
10	2022/04/26	Text Summarization and Topic Models
11	2022/05/03	Text Generation
12	2022/05/10	Case Study on Artificial Intelligence for Text Analytics II

Syllabus

Week	Date	Subject/Topics
13	2022/05/17	Question Answering and Dialogue Systems
14	2022/05/24	Deep Learning, Transfer Learning, Zero-Shot, and Few-Shot Learning for Text Analytics
15	2022/05/31	Final Project Report I
16	2022/06/07	Final Project Report II
17	2022/06/14	Self-learning
18	2022/06/21	Self-learning

Project-based Learning (PBL)

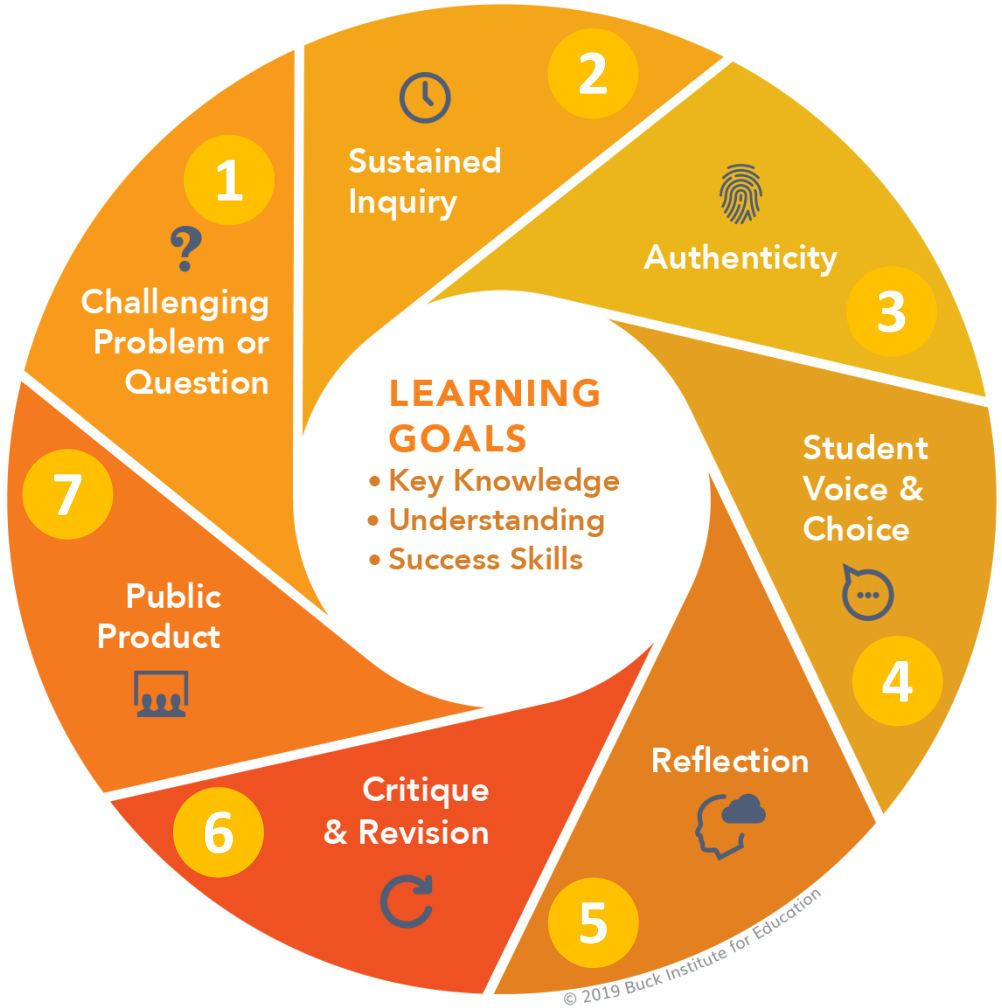
PBL

Design

Teaching

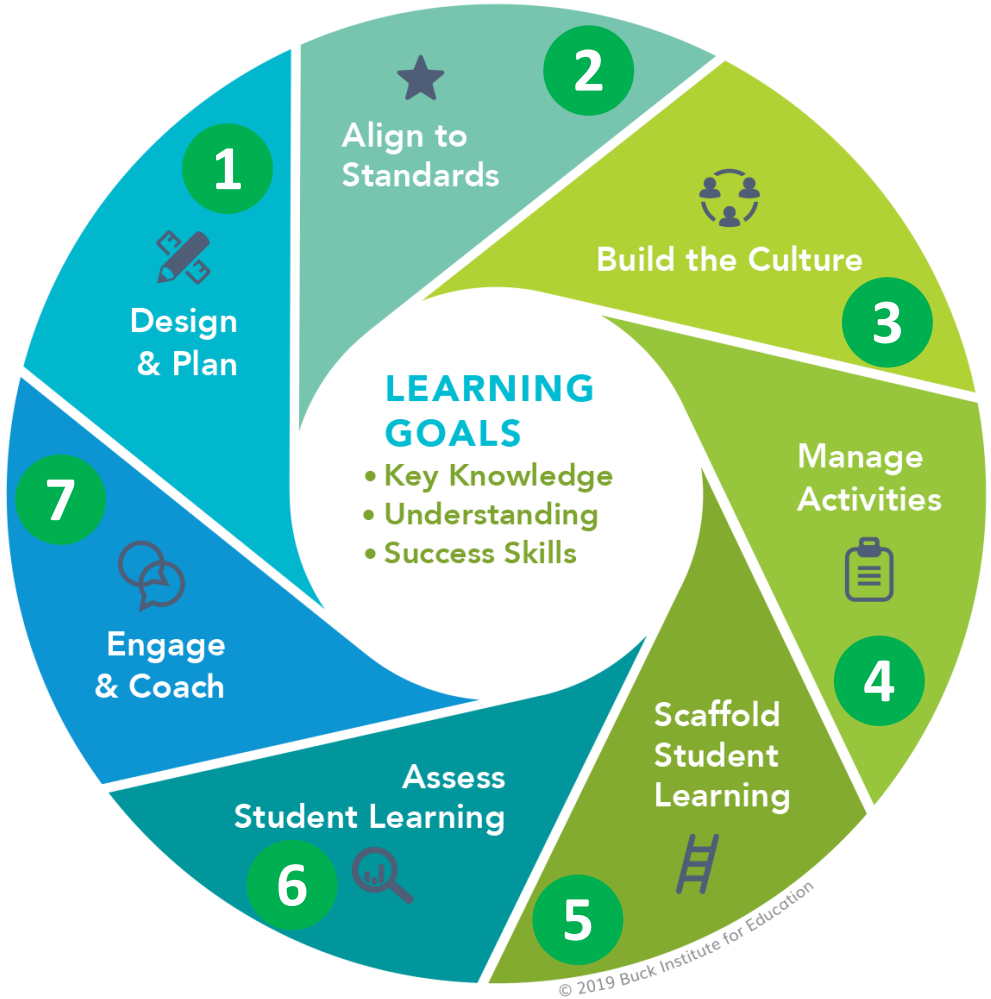
Gold Standard PBL

Seven Essential Project Design Elements



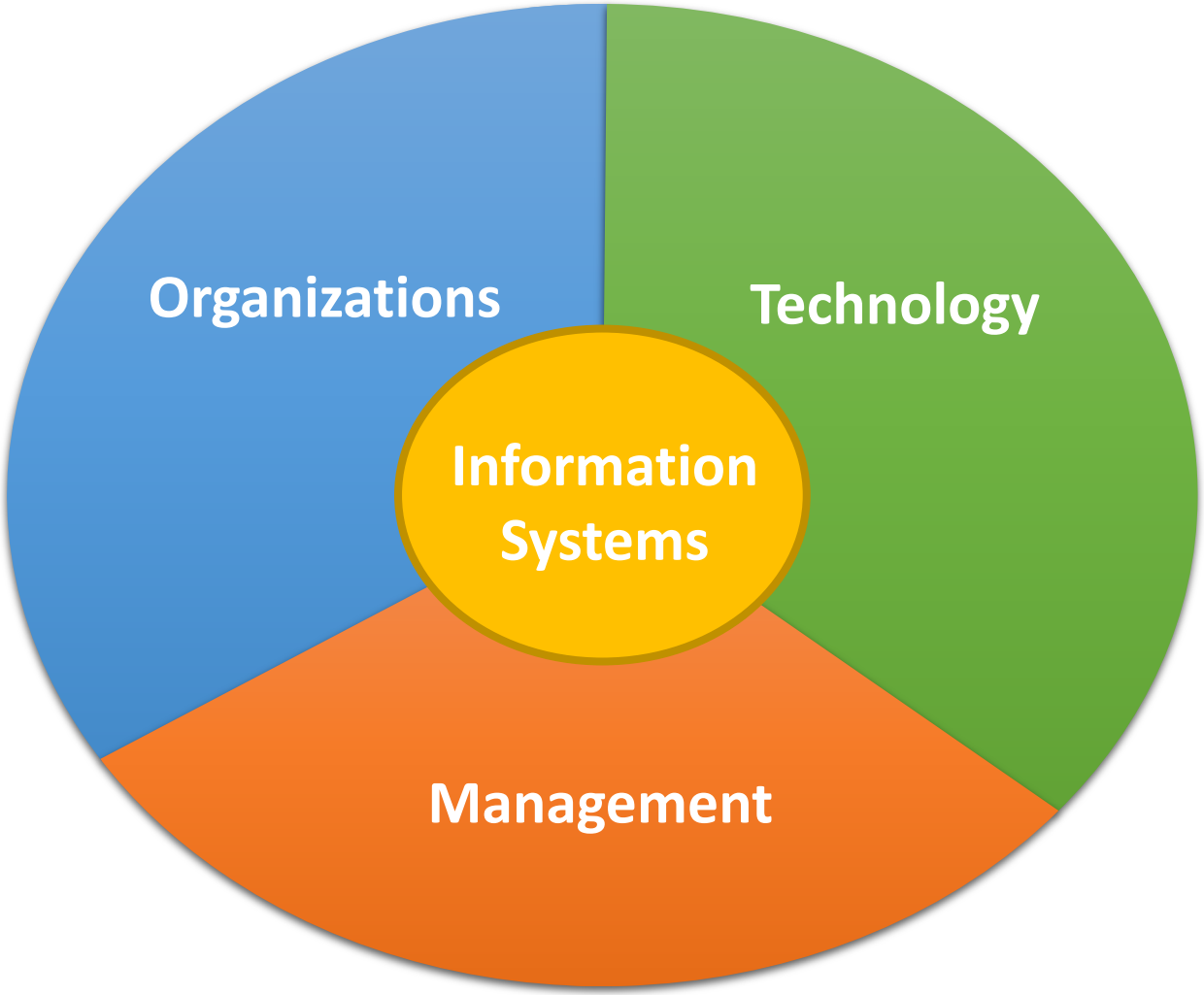
Gold Standard PBL

Seven Project Based Teaching Practices



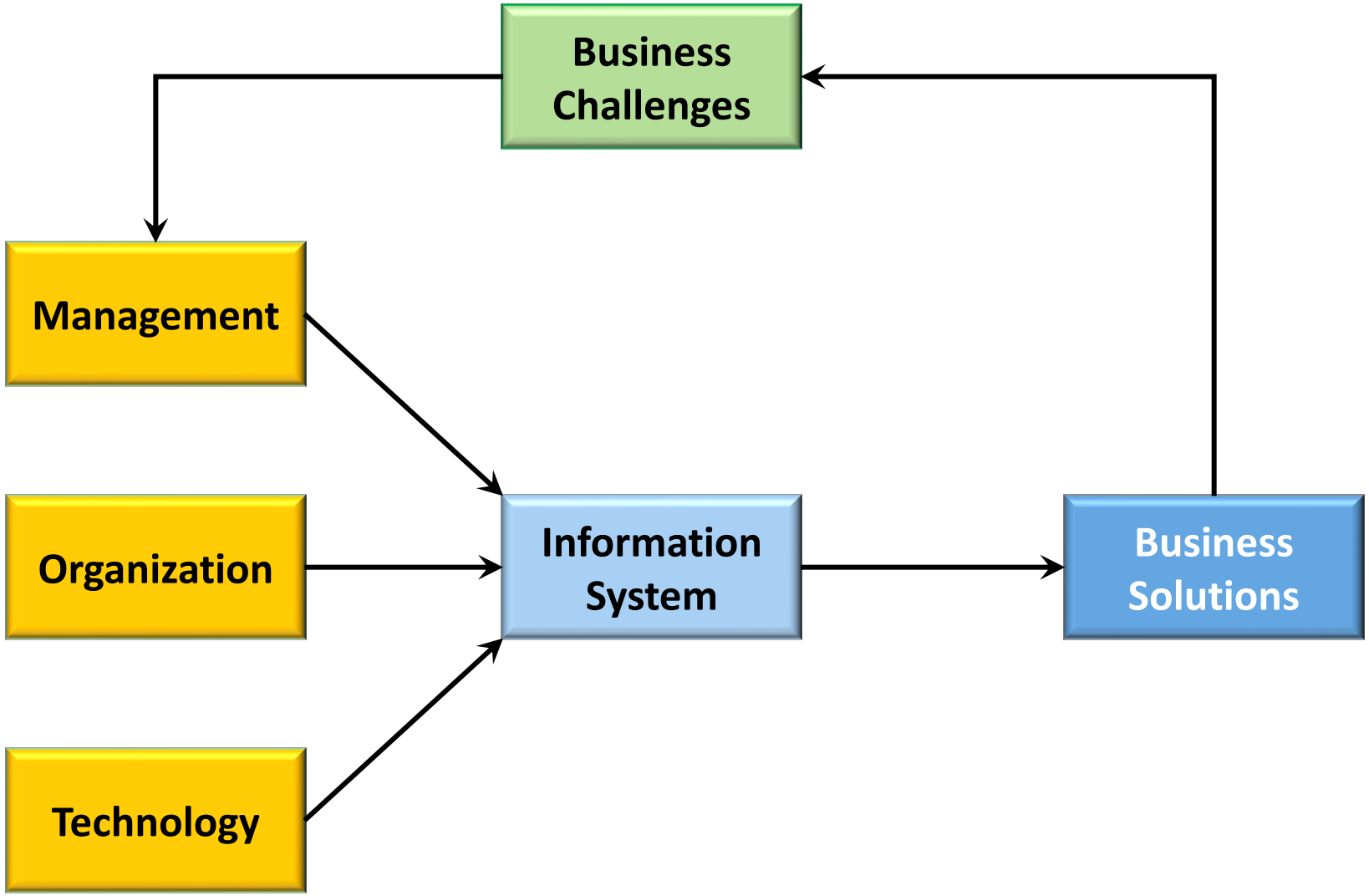
Source: https://www.pblworks.org/what-is-pbl

Information Management (MIS)
Information Systems



Source: Kenneth C. Laudon & Jane P. Laudon (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

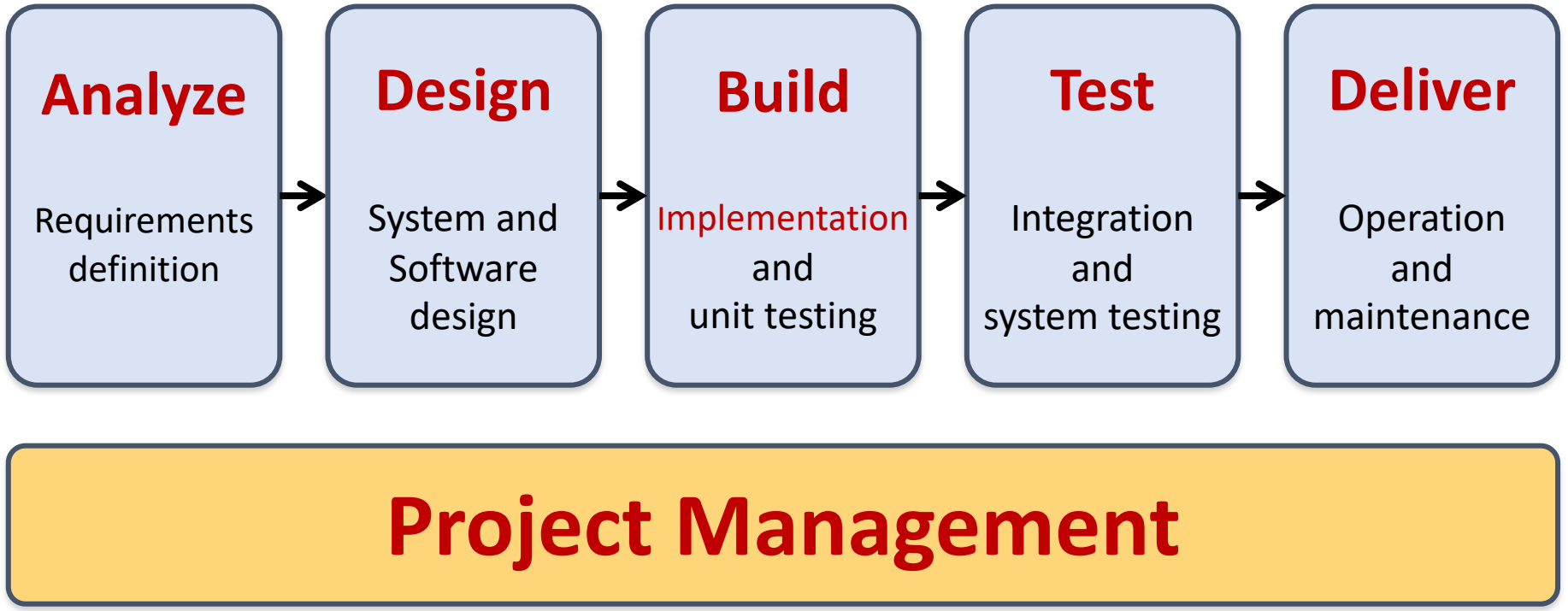
Fundamental MIS Concepts



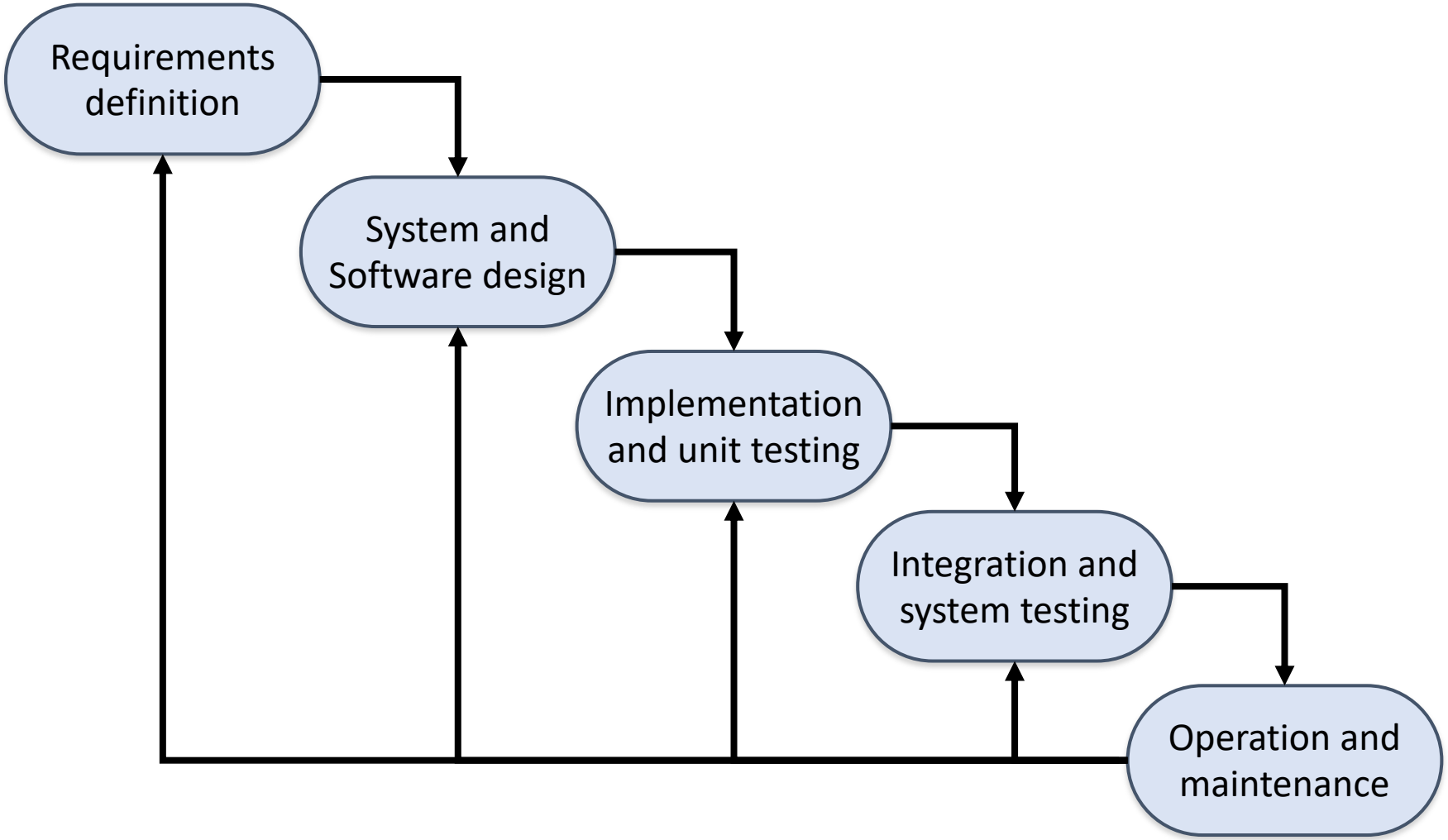
Source: Kenneth C. Laudon & Jane P. Laudon (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

Agile Software Engineering

Software Engineering
and
Project Management

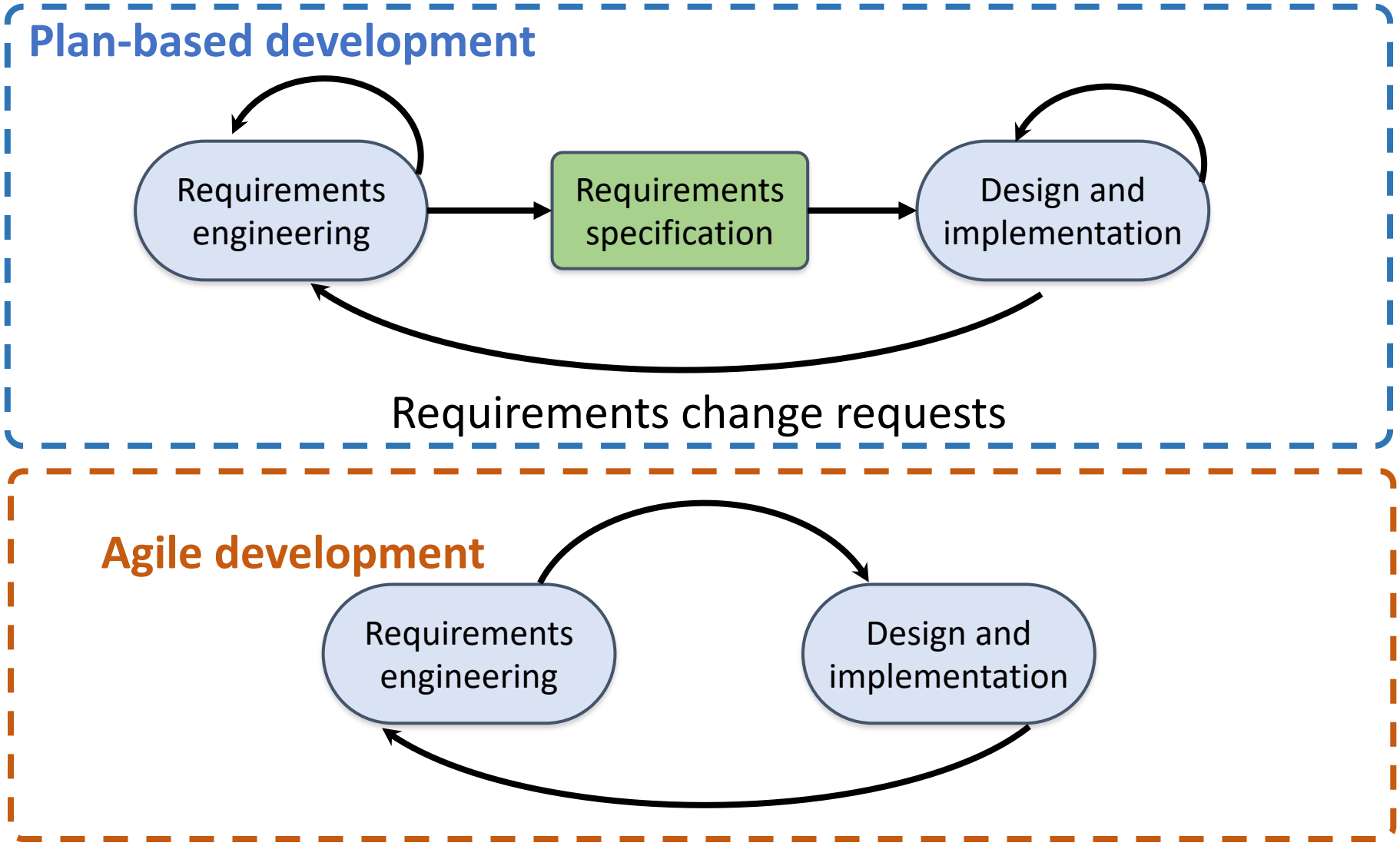


Software Development Life Cycle (SDLC)
The waterfall model



Source: Ian Sommerville (2015), Software Engineering, 10th Edition, Pearson.

Plan-based and Agile development



Source: Ian Sommerville (2015), Software Engineering, 10th Edition, Pearson.

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IMNTPU at the NTCIR-16 FinNum-3 Task: Data Augmentation for Financial Numclaim Classification

[1] Information Management, National Taipei University, New Taipei City, Taiwan
[2] Zeals Co., Ltd. Tokyo, Japan





Yung-Wei Teng [1] Pei-Tz Chiu [1] Ting-Yun Hsiao [1] Mike Tian-Jian Jiang [2] Min-Yuh Day [1,*]

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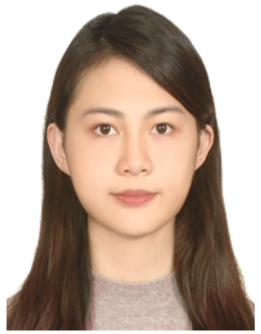
2022

IMNTPU Dialogue System Evaluation at the NTCIR-16 DialEval-2 Dialogue Quality and Nugget Detection

[1] Information Management, National Taipei University, New Taipei City, Taiwan
[2] Zeals Co., Ltd. Tokyo, Japan





Ting-Yun Hsiao [1] Yung-Wei Teng [1] Pei-Tz Chiu [1] Mike Tian-Jian Jiang [2] Min-Yuh Day [1,*]

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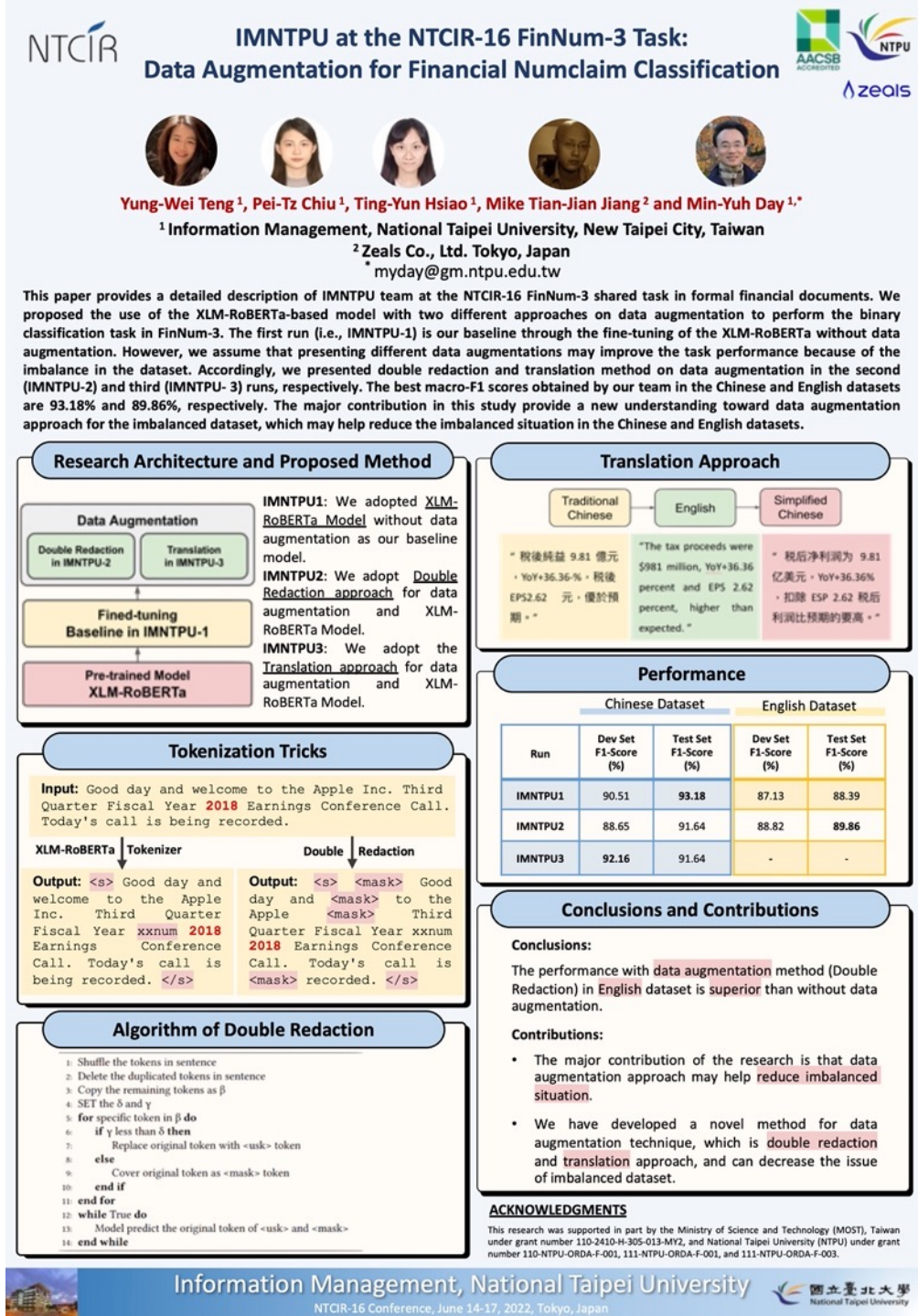
2022 NTCIR-16 Best Poster Presentation Award



NTCIR

IMNTPU at the NTCIR-16 FinNum-3 Task: Data Augmentation for Financial Numclaim Classification

Yung-Wei Teng [1], Pei-Tz Chiu [1], Ting-Yun Hsiao [1], Mike Tian-Jian Jiang [2] and Min-Yuh Day [1,*]

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This paper provides a detailed description of IMNTPU team at the NTCIR-16 FinNum-3 shared task in formal financial documents. We proposed the use of the XLM-RoBERTa-based model with two different approaches on data augmentation to perform the binary classification task in FinNum-3. The first run (i.e., IMNTPU-1) is our baseline through the fine-tuning of the XLM-RoBERTa without data augmentation. However, we assume that presenting different data augmentations may improve the task performance because of the imbalance in the dataset. Accordingly, we presented double redaction and translation method on data augmentation in the second (IMNTPU-2) and third (IMNTPU- 3) runs, respectively. The best macro-F1 scores obtained by our team in the Chinese and English datasets are 93.18% and 89.86%, respectively. The major contribution in this study provide a new understanding toward data augmentation approach for the imbalanced dataset, which may help reduce the imbalanced situation in the Chinese and English datasets.

Research Architecture and Proposed Method

Data Augmentation
- Double Redaction in IMNTPU-2
- Translation in IMNTPU-3

Fined-tuning Baseline in IMNTPU-1

Pre-trained Model XLM-RoBERTa

IMNTPU1: We adopted XLM-RoBERTa Model without data augmentation as our baseline model.

IMNTPU2: We adopt Double Redaction approach for data augmentation and XLM-RoBERTa Model.

IMNTPU3: We adopt the Translation approach for data augmentation and XLM-RoBERTa Model.

Translation Approach

Traditional Chinese → English → Simplified Chinese

"稅後純益 9.81 億元，YoY+36.36%，稅後 EPS2.62 元，優於預期。"

"The tax proceeds were $981 million, YoY+36.36 percent and EPS 2.62 percent, higher than expected."

"税后净利润为 9.81 亿美元，YoY+36.36%，扣除 ESP 2.62 税后利润比预期的要高。"

Performance

Run	Chinese Dataset Dev Set F1-Score (%)	Chinese Dataset Test Set F1-Score (%)	English Dataset Dev Set F1-Score (%)	English Dataset Test Set F1-Score (%)
IMNTPU1	90.51	**93.18**	87.13	88.39
IMNTPU2	88.65	91.64	88.82	**89.86**
IMNTPU3	**92.16**	91.64	-	-

Tokenization Tricks

Input: Good day and welcome to the Apple Inc. Third Quarter Fiscal Year **2018** Earnings Conference Call. Today's call is being recorded.

XLM-RoBERTa Tokenizer

Output: <s> Good day and welcome to the Apple Inc. Third Quarter Fiscal Year xxnum **2018** Earnings Conference Call. Today's call is being recorded. </s>

Double Redaction

Output: <s> <mask> Good day and <mask> to the Apple <mask> Third Quarter Fiscal Year xxnum **2018** Earnings Conference Call. Today's call is <mask> recorded. </s>

Algorithm of Double Redaction

```
Shuffle the tokens in sentence
Delete the duplicated tokens in sentence
Copy the remaining tokens as β
SET the δ and γ
for specific token in β do
    if γ less than δ then
        Replace original token with <usk> token
    else
        Cover original token as <mask> token
    end if
end for
while True do
    Model predict the original token of <usk> and <mask>
end while
```

Conclusions and Contributions

Conclusions:

The performance with data augmentation method (Double Redaction) in English dataset is superior than without data augmentation.

Contributions:

- The major contribution of the research is that data augmentation approach may help reduce imbalanced situation.
- We have developed a novel method for data augmentation technique, which is double redaction and translation approach, and can decrease the issue of imbalanced dataset.

ACKNOWLEDGMENTS

This research was supported in part by the Ministry of Science and Technology (MOST), Taiwan under grant number 110-2410-H-305-013-MY2, and National Taipei University (NTPU) under grant number 110-NTPU-ORDA-F-001, 111-NTPU-ORDA-F-001, and 111-NTPU-ORDA-F-003.

The 12th IEEE International Workshop on Empirical Methods for Recognizing Inference in TExt (IEEE EM-RITE 2023)

In conjunction with IEEE IRI 2023

August 4 - August 6, 2023

Bellevue, WA, USA

- **IMPORTANT DATES**
  - Regular paper submission: May 15, 2023
  - Notification of acceptance: June 12, 2023
  - Camera-ready paper due: June 26, 2023
  - Author registration due: July 3, 2023
  - Conference events: August 4 - August 6, 2023

https://sites.google.com/view/emrite2023

The 14th International Workshop on Mining and Analyzing Social Networks for Decision Support (MSNDS 2023)

In conjunction with IEEE/ACM ASONAM 2023

Marrakesh, Morocco

6-9 November 2023

- **IMPORTANT DATES**
  - Paper submission deadline: August 21, 2023
  - Acceptance notification: September 25, 2023
  - Camera-ready paper deadline: October 10, 2023
  - Author registration due: October 20, 2023
  - Conference events: November 10-13, 2023

https://sites.google.com/view/msnds2023

Acknowledgments: Research Projects

1. **Applying AI technology to construct knowledge graphs of cryptocurrency anti-money laundering: a few-shot learning model**
   - MOST, 110-2410-H-305-013-MY2, 2021/08/01~2023/07/31
2. **Fintech Green Finance for Carbon Market Index, Corporate Finance, and Environmental Policies.** Carbon Emission Sentiment Index with AI Text Analytics
   - NTPU, 112-NTPU_ORDA-F-003，2023/01/01~2024/12/31
3. **Research on speech processing, synthesis, recognition, and sentence construction of people with language disabilities.** Multimodal Cross-lingual Task-Oriented Dialogue System
   - NTPU, 112-NTPU_ORDA-F-004, 2023/01/01~2025/12/31
4. **Use deep learning to identify commercially dental implant systems - observational study**
   - USTP-NTPU-TMU, USTP-NTPU-TMU-112-01, 2023/01/01~2023/12/31
5. **Metaverse Avatar Automatic Metadata Generation Module**
   - FormosaVerse x NTPU, NTPU-111A413E01, 2022/12/01~2023/11/30
6. **Establishment and Implement of Smart Assistive Technology for Dementia Care and Its Socio-Economic Impacts.** Intelligent, individualized and precise care with smart AT and system integration
   - MOST, 111-2627-M-038-001-, 2022/08/01~2023/07/31

Summary

- EMI Teacher Community, AACSB, NTPU
- Teaching Experiences Sharing
- EMI Courses
- Project-based Learning (PBL)

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Sharing Teaching Experiences in EMI Courses and Project-based Learning (PBL)

2023/5/22 (Monday) 13:00 - 15:00
Host: Prof. Yu-Chin Liu
Information Management, College of Management, Shih Hsin University (SHU)
2F, No. 111, Muzha Road, Section 1, Wenshan District, Taipei, Taiwan

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Institute of Information Management, National Taipei University

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