



# Kristina P. Sinaga

kpnaga08 | Kristina P. Sinaga | Kristina P. Sinaga

*"Be the change that you want to see in the world."*

## Summary

I have a PhD in Applied Mathematics, which I completed in June 2020. Since then, I have been working as a lecturer at a private university in Indonesia. I am very passionate about developing intelligent pattern recognition algorithms, especially for single and multi-view learning. I have a proven track record of success in this area and am proficient in various machine learning techniques, including classification, feature selection/reduction, parameter estimation, regression, and clustering. I also have a strong background in data analysis and model validation. I am skilled in using programming tools like Matlab, Python, and R to prototype solutions and test algorithms on large datasets. Soon, I will be joining CYCU as a postdoc fellow, where I plan to continue my research in developing intelligent pattern recognition algorithms.

## Work Experience

### Chung Yuan Christian University

*Taoyuan, Taiwan*

POST-DOCTORATE FELLOW

*March 2023 - Present*

- Develop novel algorithms for clustering or tensor-based clustering that can be applied to large, complex data sets.
- Conduct research to identify new techniques and approaches that can improve clustering accuracy and speed for pattern recognition applications.
- Stay up-to-date with the latest developments in clustering and pattern recognition research, and use this knowledge to inform and improve research efforts.
- Publish research findings in high-impact journals and present work at conferences and workshops.

### Bina Nusantara University

*West Jakarta, Indonesia*

LECTURER/FACULTY MEMBER

*Nov. 2020 - May 2022*

- Developed course materials and curriculum.
- Stimulated meaningful discussions during classes.
- Attended international conferences.
- Conferred with other researchers and professionals.
- Guided/taught undergraduate and graduate students.
- Graded assignments.
- Served as a member of the University.

### Chung Yuan Christian University

*Taoyuan, Taiwan*

PHD STUDENT RESEARCHER

*Sep. 2016 - Jun. 2020*

- Conducted research to produce new knowledge, applications or insights at the cutting edge of the discipline.
- Adapted the research plan in light of unexpected problems.
- Developed algorithms for single and multi-view learning.

## Education

### CYCU (Chung Yuan Christian University)

*Taoyuan, Taiwan*

PH.D. IN APPLIED MATHEMATICS

*Sept. 2016 - Jun. 2020*

- Thesis title: Multi-View Fuzzy Clustering Algorithms for Multi-View Data
- Advisor: Prof. Miin-Shen Yang
- CGPA: 3.842
- Got CYCU International Student Scholarship which is given to the top 25% students of their department academically.
- Attended dozens of seminars by experts in computational mathematics, scientific computing, and/or data science.
- Developing friendly unsupervised learning algorithms like relational mountain clustering method (ICAISC 2018), k-means (IEEE Access 2019, IEEE Access 2020, IEEE Access 2021), and Fuzzy c-means (Pattern Recognition 2021) to give high-quality results and support intelligent action, such as determining the number of clusters, feature selection, feature reduction, and collaborative learning.
- Worked as a part-time teacher in the YinFuBan Program of the university.

### USU (University of Sumatera Utara)

*Medan, Indonesia*

MS. IN MATHEMATICS

*Dec. 2013 - Dec 2015*

- Thesis title: Model Optimasi Stokastik Penentuan Lokasi dan Jumlah Ambulan dengan Korelasi (in Bahasa Indonesia)
- CGPA: 3.78
- Advisors: Prof. Herman Mawengkang and Dr. Esther Nababan

- Thesis title: Analisis Pengaruh Produk Domestik Regional Bruto, Pendidikan dan Pengangguran terhadap Kemiskinan di Kabupaten/Kota Propinsi Sumatera Utara (in Bahasa Indonesia)
- CGPA: 3.30
- Advisors: Prof. Tulus and Dr. Open Darnius

## Honors & Awards

### INTERNATIONAL

2020	<b>Honorary member</b> , The Phi Tau Phi Scholastic Honor Society of The Republic of China	CYCU, Taiwan
2019	<b>Recipient</b> , MOST Travel Grant	Taipei, Taiwan
2018	<b>Recipient</b> , Japan Science and Technology Agency ( JST)	Niigata, Japan
2017	<b>Recipient</b> , Japan Student Service Organization ( JASSO)	Niigata, Japan
2016	<b>Recipient</b> , CYCU International Student Scholarship	CYCU, Taiwan

## Certifications

2022	<b>Coursera-DeepLearning.AI TensorFlow Developer Professional</b> , Instructor: Laurence Moroney	Online Courses
2022	<b>Coursera-Machine Learning Specialization</b> , Instructor: Andrew Ng	Online Courses
2020	<b>Coursera-Learning to Teach Online</b> , Instructor: Associate Professor Simon McIntyre & Dr Negin Mirriah	Online Courses

## Professional Service

### IEEE Access, IEEE TKDE, Information Fusion, Applied Soft Computing, WCCI2022, and IJCNN2023

Dec 2020 - Present

#### INVITED REVIEWER

- Responsible for critiquing by reading and evaluating manuscripts in the field of expertise.
- Gave constructive advice and honest feedback to the author of the article submitted.
- Discussed the strengths and weaknesses of the article, how to increase the strength and quality of the paper.
- Evaluated the relevance and authenticity of the manuscript.

#### IEEE SPS & CIS

Dec. 2020 - Dec. 2021

#### MEMBER

- The world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.
- Attended a lot of online events and activities

## Presentation

### 2021 3rd International Conference on Cybernetics and Intelligent System (ICORIS)

Virtual

#### PRESENTER FOR <TELECOMMUNICATION ANALYTICS BASED ON CUSTOMER SEGMENTATION USING UNSUPERVISED ALGORITHMS>

Oct. 2021

- Introduced seven different unsupervised algorithms for solving the most crucial assets for a business in numerous dynamic and competitive telecommunication companies within a marketplace, which the data available in Kaggle.

### 2021 3rd International Conference on Cybernetics and Intelligent System (ICORIS)

Virtual

#### PRESENTER FOR <MACHINE LEARNING APPROACHES FOR MARKETING CAMPAIGN IN PORTUGUESE BANKS>

Oct. 2021

- Introduced three classification (Decision Tree, Naïve Bayes, and Random Forest) and clustering (K-Means, K-Medoids, and DBSCAN) methods to predict whether their clients would subscribe to a term deposit or not.

### The 6th International Conference on Soft Computing in Data Science 2021 (SCDS2021)

Virtual

#### PRESENTER FOR <ANALYTICS-BASED ON CLASSIFICATION AND CLUSTERING METHODS FOR LOCAL COMMUNITY EMPOWERMENT

Aug. 2021

#### IN INDONESIA>

- Introduced the best method to measure the people's level of understanding and perception towards PNPM RESPEK' program.

### The 17th International Conference on Artificial Intelligence and Soft Computing ICAISC 2018)

Zakopane, Polandia

#### PRESENTER FOR <MODIFIED RELATIONAL MOUNTAIN CLUSTERING METHOD>

Jun. 2018

- Introduced a modified RCM (M-RMCM)

# Teaching Experience

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## Graduate Course

BUSINESS INTELLIGENCE AND ANALYTICS

- Odd and even semesters 2021
- Odd and even semesters 2020

*Binus University, Indonesia*

*Nov. 2020 - Apr. 2022*

## Undergraduate Course

DISCRETE MATHEMATICS & CALCULUS I

- Odd and even semesters 2021

*Binus University, Indonesia*

*Sep. 2021 - Ap. 2022*