ACADEMIC PORTFOLIO

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TEACHING PORTFOLIO

TEACHING PHILOSOPY

My teaching philosophy is anchored in the principle that education is not a one-size-fits-all approach. It thrives on diversity, practicality, and relevance. This belief has been the guiding force behind my extensive experience teaching an array of courses, from "Basic R Program" to "Applied Natural Language Processing (NLP)." I lead students in practical coding, data analysis, and text processing projects to prepare them for real-world challenges in data science and computational methods. Here's how I translate this philosophy into action:

1. **Tailored Curriculum:**

   My courses are meticulously crafted to provide a comprehensive toolkit for students. For instance, in my Applied NLP course, I guide students through a range of techniques, including rule-based methods, machine learning algorithms, and the utilization of Large Language Models (LLMs). Realizing that these methods have wide-ranging applications, I ensure that each concept is grounded in practical examples and real-world case studies, such as sentiment analysis of customer reviews or text classification for legal documents.

2. **Embracing Diversity:**

   I recognize the diverse expertise levels and career aspirations among my students. Some may come to the class as seasoned professionals in their respective fields, while others may be novices in coding or computational methods. To accommodate this diversity, I structure my classes to provide flexibility and autonomy in project selection. Whether a student's interest lies in analyzing healthcare data or extracting insights from social media trends, I encourage them to pursue projects that align with their passions and professional goals. By tailoring the learning experience to their individual interests and fields of study, I aim to ensure that the knowledge gained is not just theoretical but directly applicable, fit with their field of interest, and beneficial to their careers.

3. **Accessible Teaching:**

   Understanding that many of my students may be new to coding or computational methods, I prioritize clarity and accessibility in my teaching approach. Rather than inundating them with technical jargon, I strive to explain complex concepts using everyday language and relatable examples. For instance, when introducing fine-tuning concept in Large Language Models (LLMs), I often draw analogies to familiar scenarios, such as adjusting the settings on a smartphone camera to capture better photos in different lighting conditions. This approach not only demystifies abstract concepts but also empowers students to apply their newfound knowledge in practical settings.

4. **Creating a Supportive Environment:**

   My commitment to fostering a supportive learning environment comes from my own transition into coding and data science, despite a background in Law Science. I understand the challenges of learning without a computer science foundation, so I strive to make my classes both educational and enjoyable. Using the analogy of coding as a game, I encourage students to see challenges as opportunities for growth. By promoting experimentation and framing mistakes as learning moments, I empower students to approach coding with confidence, resilience, and enthusiasm.

5. **Real-World Relevance:**

   Leveraging my experience in data analysis and consulting, I incorporate real-world case studies and industry challenges into my teaching. For instance, when covering data collection and web scraping, I share practical insights from handling unstructured, messy text data. This approach equips students with strategies for real-world data scenarios and prepares them for professional success. Additionally, I emphasize ethical and legal considerations, highlighting privacy and ethical dilemmas inherent in working with sensitive data.

TEACHING & TRAINING EXPERIENCES

***Note**: Those that are highlighted in green are volunteering initiatives.*

Course Name	Host Institution	Language	Period	Class Activities	Responsibility	Participants
Introduction to Natural Language Processing	Université Marie et Louis Pasteur (France)	English	2024 – present	Lectures, hands-on and coding practice, group and personal project work, project reports and presentations, class discussions, assignments and examinations	Curriculum designing, planning, teaching, supervising, and grading	Undergraduate students (L1)
Language and Informatics	Université Marie et Louis Pasteur (France)	English	2025 – present	Lectures, hands-on and coding practice, group and personal project work, project reports and presentations, class discussions, assignments and examinations	Curriculum designing, planning, teaching, supervising, and grading	Undergraduate students (L2)
Methods and Tools in Natural Language Processing	Université Marie et Louis Pasteur (France)	English	2024 – present	Lectures, hands-on and coding practice, group and personal project work, project reports and presentations, class discussions, assignments and examinations	Curriculum designing, planning, teaching, supervising, and grading	Postgraduate students (M1)
Applied Natural Language Processing (Rule-based, Dictionary-based, Patterns Matching, Weakly Supervised, Machine Learning, Large Language Models (LLMs), Building NLP apps demo, Retrieval Augmented Generation (RAG), Synthetic data generation, Text Classification, Text Generation, Named Entity Recognition (NER), HuggingFace, Ollama, LangChain, etc)	GRETA-CFA de Besançon (France)	English	2023 – present	Lectures, hands-on and coding practice, group and personal project work, project reports and presentations, class discussions, assignments and examinations	Curriculum designing, planning, teaching, supervising, and grading	Vocational Students (High school graduates to PhD holder)
Web Scraping and Processing Unstructured Data and Texts using Python	Center for Standardization and Services of The Leather, Rubber and Plastic Industry Services (Indonesia)	Indonesian	2004	Lecture, hands-on and coding practice, assignment	Curriculum designing, planning, teaching, supervising, and evaluating	Civil Servants & Scientists
Research Methodology	State Islamic University of Sultan Syarif Kasim Riau (Indonesia)	Indonesia	January 2021	Online lecture, discussions	Planning & teaching	Undergraduate students
Text Mining and its applications in health sciences using R	AnalyticalD & Airlangga University (Indonesia)	Indonesian & English	September 2020	Lecture, hands-on and coding practice, assignment	Curriculum designing, planning, teaching, supervising, and evaluating	Lecturers & Scientists
Research Methodology	Badakers (Indonesia)	Indonesian	2020	Online lecture, discussions	Planning & teaching	Undergraduate students
Academic Writing & Publication	Badakers (Indonesia)	Indonesia	2020 – present	Online lecture, discussions	Planning, teaching & reviewing	Undergraduate & Postgraduate students
Basic R program for Statistics ()	Faculty of Science and Technology, Prince of Songkla University (Thailand)	English	Jan – Jun 2019	Lecture, hands-on and coding practice, assignment, examination	Teaching & assisting professor in class activities	Undergraduate students

SAMPLE SYLLABUS (BRIEF VERSION)

SUBJECT: Applied Natural Language Processing (NLP)
COURSE PERIOD: 2023 – 2024 (64 hours)
INSTRUCTOR: Panggih Kusuma Ningrum | panggih_kusuma.ningrum@univ-fcomte.fr

COURSE OBJECTIVES
By the conclusion of the course, students should be able to demonstrate the following competencies:

- Mastery of the fundamentals of NLP
- Understanding of the end-to-end process of NLP and the ability to handle problems during the process
- Understanding of the function and logic behind each NLP technique
- Ability to select and apply NLP techniques correctly
- Creation of a project portfolio showcasing their work, which can be beneficial for their job-hunting process

INSTRUCTIONAL METHODS
During the scheduled class meetings, students can expect to engage in a variety of activities, including lectures, hands-on and coding practice, group and personal project work, project report and presentation, class discussion, and viewing of sample coding notebooks, relevant papers, and online materials.

COURSE TOPICS

- Introduction to NLP
- Text preparation and extraction from various formats (e.g., .txt, JSON, PDF)
- Text cleansing and pre-processing
- NLP techniques and their applications: Named-entity recognition (NER), Text classification, Sentiment analysis, Topic modelling, Text generation
- Regular expression (Regex) and the use of Regex to extract entities from text
- Employing spaCy for rule-based NER
- Sentiment Analysis
- Introduction to Transformers and Large Language Models (GPT, BERT, BART, T5)
- Language Model Fine-tuning, In-Context Learning, and Prompting
- Introduction to Hugging Face
- Introduction to RAG and Its Application
- Building and developing a demo for NLP applications

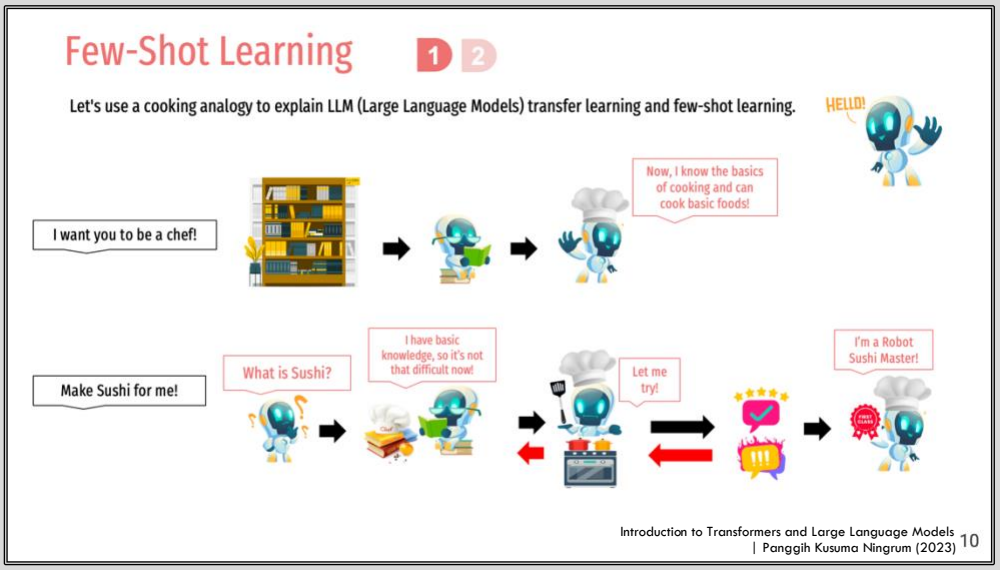
ASSIGNMENTS & EXAMINATION
The following points will be calculated and accumulated for the final course grade of each student.

• CODING EXERCISE
A coding exercise will be conducted in each class. All codes and relevant files must be submitted to the student's GitHub repository. Each student must also send the link of the repository to panggih_kusuma.ningrum@univ-fcomte.fr.
The coding exercise will contribute 25% to the final grade.

• PROJECT REPORT
At the conclusion of each group or individual project, students are required to present a report to the class. The report should include an explanation of the project design and methodology, a detailed coding explanation, a demonstration of the project in action, an evaluation of the project's performance, and a discussion of the challenges encountered and the strategies employed to overcome them. The project reports will contribute 25% to the final grade.

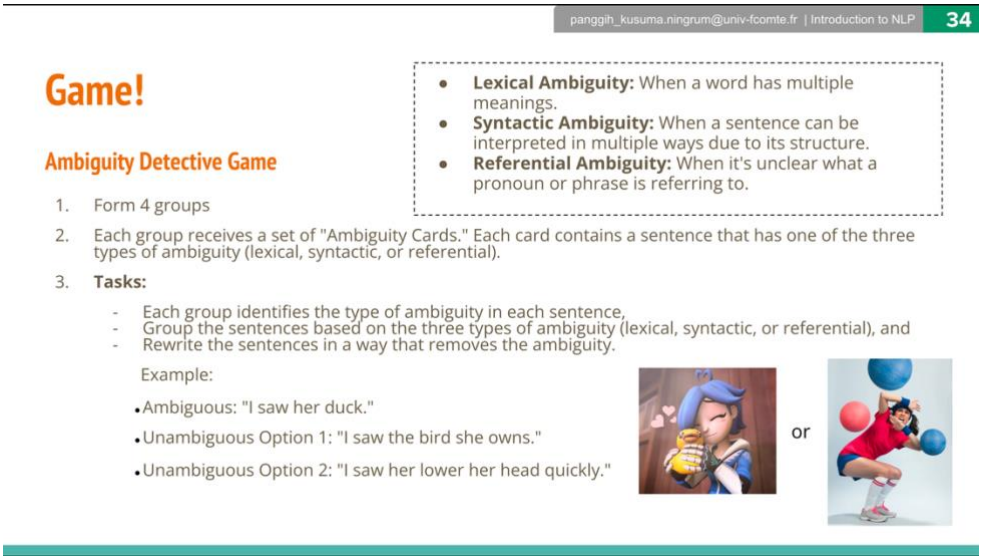
• PROJECT PORTFOLIO
Upon completion of the course, students will be required to publicly showcase their projects and at least one demonstration application. The instructor and examiners will evaluate the demonstration(s) based on criteria such as the idea, the performance, and the design. The project portfolio will contribute 50% of the final score.

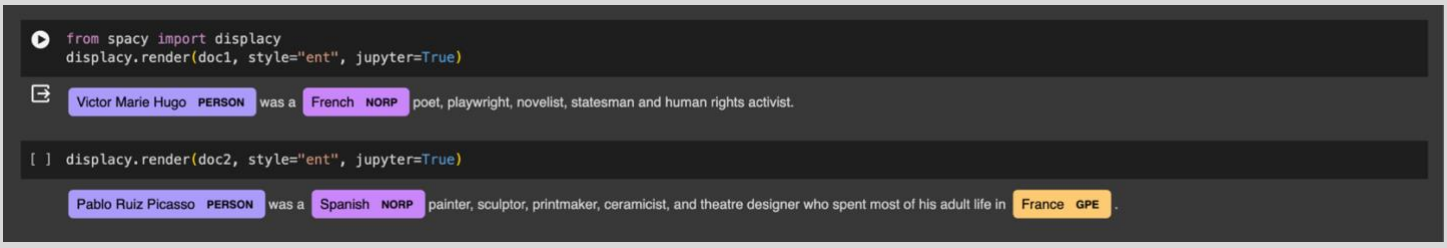
SAMPLE OF TEACHING MATERIALS



This slide was captured from a lecture on Applied Natural Language Processing (NLP). The cooking analogy and accompanying illustration are employed to elucidate the concepts of transfer learning and few-shot learning.

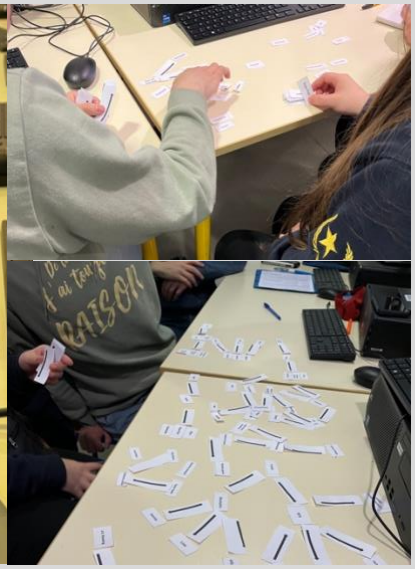
This slide, from my Introduction to NLP course, illustrates key types of ambiguity—lexical, syntactic, and referential—through a gamified activity. Designed to be interactive, the session enhances student engagement and deepens conceptual understanding.





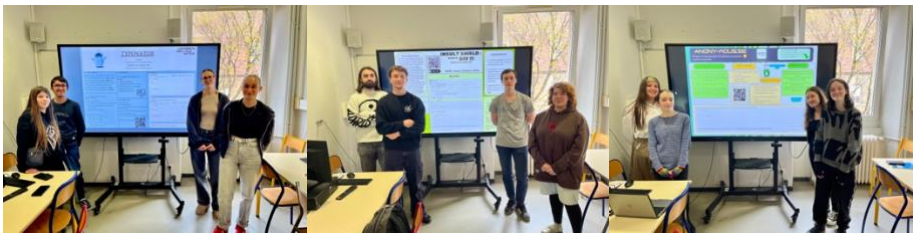
This is a representative example of Python code designed to illustrate the Named-Entity Recognition (NER) task. The code guides students in implementing NER to identify entities such as Person, Nationality, and Country/City/States within textual data.

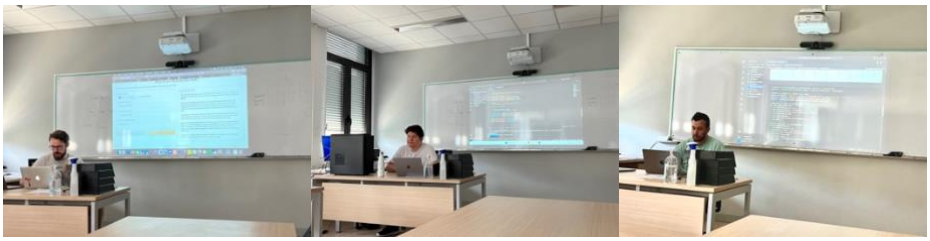
SAMPLE OF CLASS ACTIVITIES



This interactive game helps students learn about Name Entity Linking (NEL) and knowledge graphs in NLP.

The NLP demo launch day takes place at the end of the semester, when students present the results of their group projects through poster presentations and demo testing.

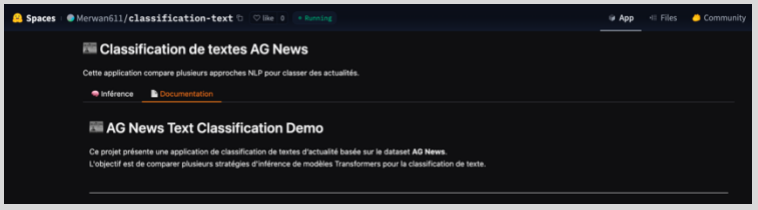


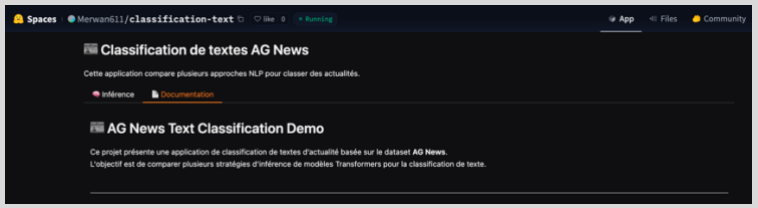


Presentation of personal projects and code reviews.

Samples of NLP demo apps built by my students:

- [ToxiCheck]
- [Classification de textes AG News]
- [Sarcasme Detection]





SCIENTIFIC PORTFOLIO

RESEARCH PROJECTS & COLLABORATIONS

The following list details my research projects for the last 5 years, along with a summary of my roles and contributions to each project:

Project Name	Institutions Involved	Description	Period	My Responsibilities & Contributions
Modelling Uncertainty in Science (InSciM)	CRIT, UFC (France), UBFC (France), French ANR JCJC (France)	Funded by French ANR JCJC (ANR-21-CE38-0003-01)	2022 – present	**Responsibilities:** ▪ Serving as a PhD Researcher and NLP Engineer ▪ Conducting and enhancing the research ▪ Responsible for the data collection, preprocessing, coding & analysis ▪ Creating annotation guidelines and assisting the data annotation process ▪ Assisting interns ▪ Reporting regularly to the Principal Investigator and Project Advisory Board ▪ Writing the manuscripts ▪ Research dissemination through scientific conferences **Contributions:** ▪ Literature reviews and conceptual frameworks ▪ Published annotated corpus (Gold Standard) ▪ The first author and co-author of published peer-reviewed papers and academic posters.
Research collaboration project	CRIT, UFC (France), UBFC (France), GESIS - Leibniz Institute for the Social Science (Germany)	Building and developing an NLP tool called UnScientify to detect uncertainty in scientific articles	2023 – present	**Responsibilities:** ▪ Serving as a PhD Researcher and NLP Engineer ▪ Conducting and enhancing the research ▪ Responsible for the data collection, preprocessing, coding & analysis ▪ Writing the manuscripts ▪ Creating the NLP web demo and prototype ▪ Research dissemination through scientific conferences **Contributions:** ▪ Building & deploying the UnScientify demo application: https://bit.ly/unscientify-demo ▪ The first author and co-author of published peer-reviewed papers and academic workshop paper
Research collaboration project	CRIT, UFC (France), UBFC (France), Université du Québec à Montréal (Canada)	Text analysis in Astrobiology research	2023 – present	**Responsibilities:** ▪ Serving as a PhD Researcher and NLP Engineer ▪ Conducting and enhancing the research ▪ Responsible for the data collection, preprocessing, coding & analysis ▪ Writing the manuscripts

				Contributions: Co-author of published peer-reviewed papers and academic workshop papers
Market Research project	Industrial Services Policy and Standardization Board - Center for Standardization and Services of The Leather, Rubber and Plastic Industry Services (Indonesia)	Market research, data collection and pre-processing	2023 – 2024	**Responsibilities:** ▪ Assisting the data collection, pre-processing, coding & analysis ▪ Teaching and mentoring the civil servants in the institution
Multi-Lingual Environmental, Social and Governance (ESG) Impact Duration Inference (ML-ESG-3)	CRIT, UFC (France), UBFC (France)	Shared Task on Learning Semantic Similarities for the Financial Domain	2024	**Responsibilities:** ▪ Serving as a PhD Researcher and NLP Engineer ▪ Conducting and enhancing the research ▪ Responsible for the data collection, preprocessing, coding & analysis ▪ Creating annotation guidelines and assisting the data annotation process ▪ Assisting interns ▪ Presenting the poster **Contributions:** Co-author of published peer-reviewed papers and academic poster
Research collaboration project	Analytica ID (Indonesia), HeyLaw (Indonesia), Faculty of Law - University of Miskolc (Hungary)	Artificial Intelligence & Labour Law	2020 – 2021	**Responsibilities:** ▪ Conducting and enhancing the research ▪ Data Analysis ▪ Writing and publishing the manuscripts **Contributions:** Co-author of published peer-reviewed papers and book chapter

OTHER ACADEMIC & VOLUNTEER SERVICE

Scientific Reviewer 07/2025
at Journal of Informatics (indexed in Q1 Scopus & Web of Science)

Trainer for Data Processing and Analysis 05/2024
at Industrial Services Policy and Standardization Board - Center for Standardization and Services of The Leather, Rubber and Plastic Industry Services (Indonesia)

Scientific Committee Member 06/2023
at International Conference on the Theory of Information Retrieval (ICTIR) – 2023 (Taiwan)

Academic Committee 09/2019 – 11/2019
at 7th Asian Academic Society International Conference (Thailand

PUBLICATIONS

Peer-Reviewed Articles – Natural Language Processing & Its Implementation

- Annotating Scientific Uncertainty: A comprehensive model using linguistic patterns and comparison with existing approaches
  Published in Journal of Informetrics (2025)
  Authors: Panggih Kusuma NINGRUM, Philipp MAYR, Nina SMIRNOVA, Iana ATANASSOVA
- Is There Life on Mars? Studying the Context of Uncertainty in Astrobiology
  In: 20th International Conference of the International Society for Scientometrics and Informetrics (ISSI 2025), Yerevan, Armenia
  Authors: Iana ATANASSOVA, Panggih Kusuma NINGRUM, Nicolas GUTEHRLÉ, Francis LAREAU, Christophe MALATERRE
- Etudier l'incertitude dans les articles scientifiques: mise en perspective d'une méthode linguistique
  In: La conférence Extraction et Gestion des Connaissances (EGC), Strasbourg, France (2025)
  Authors: Panggih Kusuma NINGRUM, Nicolas GUTEHRLÉ, Iana ATANASSOVA
- Annotation of scientific uncertainty using linguistic patterns
  Published in Scientometrics (2024)
  Authors: Panggih Kusuma NINGRUM, Iana ATANASSOVA
- Criticalminds: Enhancing ml models for esg impact analysis categorisation using linguistic resources and aspect-based sentiment analysis
  In: Joint Workshop of the 7th Financial Technology and Natural Language Processing and the 5th Knowledge Discovery from Unstructured Data in Financial Services, and the 4th Workshop on Economics and Natural Language Processing@ LREC-COLING-2024, Turin, Italy (2024)
  Authors: Iana ATANASSOVA, Marine POTIER, Maya MATHIE, Marc BERTIN, Panggih Kusuma NINGRUM
- UnScientify: Detecting Scientific Uncertainty in Scholarly Full Text
  In: Joint Workshop of the 4th Extraction and Evaluation of Knowledge Entities from Scientific Documents (EEKE2023) and the 3rd AI + Informetrics (AII2023), part of the ACM/IEEE Joint Conference on Digital Libraries 2023, Santa Fe, New Mexico, USA, June 26 - 30, 2023
  Authors: Panggih Kusuma NINGRUM, Philipp MAYR, Iana ATANASSOVA

Peer-Reviewed Articles – Applied NLP in Social Science and Others

- Text mining of online job advertisements to identify direct discrimination during job hunting process: A case study in Indonesia
  Published in PloS One (2020)
  Authors: Panggih Kusuma NINGRUM, Tatdow PANSOMBUT, Attachai UERANANTASUN
- The Role of the Artificial Intelligence in the Labour Law Relations in European and Asian Aspect
  Published in İnsan ve İnsan (2021)
  Authors: Gábor MÉLYPTAKI, Zsófia RİCZU, Dávid MÁTÉ, Panggih Kusuma NİNGRUM

Book Chapter

Employer or Owner? The Character of Platform Work
Book chapter in Sustainability in the Gig Economy, Perspectives, Challenges and Opportunities in Industry 4.0
Published in Springer Nature (2022)
Authors: Gábor MÉLYPTAKI, Dávid MÁTÉ, Panggih Kusuma NİNGRUM, Zsófia RİCZU

Other Talks & Presentations

- Indonesia's Digital Sovereignty in the Age of Cloud Computing: Legal and AI Perspectives on Chinese Data Providers
  In: Interdisciplinary conference and discussion on the challenges of the digital society, University of Miscolc, Hungary (2025)
  Authors: Andi Tri HARYONO, Panggih Kusuma NINGRUM

- Exploring Research Valorization through Media and Policy Engagement: A Case Study of Indonesian Research in PLoS One
  In: Journée des Doctorants Indonésiens, Paris (2024)
  Author: Panggih Kusuma Ningrum

- Navigating the Unknown: A Textual Analysis of Uncertainty in Astrobiology Research
  In: Congress of the Canadian Society for the History and Philosophy of Science (CSHPS), Canada (2024)
  Authors: Christophe MALATERRE, Iana ATANASSOVA, Francis LAREAU, Panggih Kusuma NINGRUM

- Natural Language Processing and Entrepreneurial Innovation: Impact and Optimization for Entrepreneurs in Indonesia
  Key Guest Speaker at The International Conference "Leveraging Global Entrepreneurship Index to Enhance National Competitiveness", Wahid Hasyim University, Indonesia (2024)
  Author: Panggih Kusuma NINGRUM

- **Text classification beyond words: Harnessing Linguistic Features for Automatic Classification of Scientific Texts**
  In: Science week - Kutatások az alkalmazott informatika területén, University of Dunaújváros (2023)
  Author: Panggih Kusuma NINGRUM

- Research is ~~Boring~~ Fun: Debunking the Myths about Research
  Key Guest Speaker at Expertise Class, Britzoneld (2022)
  Author: Panggih Kusuma NINGRUM

- A platform munkavégzés jellemzői – munkáltató, vagy tulajdonos?
  In: Internetes platformok kora – társadalmi hatások és szabályozási kihívások conference, Information Society Research Institute of the National Public Service University, Hungary (2021)
  Authors: Gábor MÉLYPTAKI, Zsófia RİCZU, Dávid MÁTÉ, Panggih Kusuma NİNGRUM

- Identifying Gender Stereotypes in Indonesia for Accounting Job Positions in Online Job Ads
  In: International workshop - Research Method in Practice 2018, Faculty of Science & Technology, Prince of Songkla University, Thailand (2018)
  Authors: Panggih Kusuma NINGRUM, Attachai UERANANTASUN, Tatdow PANSOMBUT

CONSULTING SERVICE

CONSULTING EXPERIENCE

NLP Application Consultant and Mentor *2023 – 2025*
Client: University of Oxford (UK)
Provides consultative services on multilingual text analysis, specifically tailored to the domain of citizen complaints and report data. The consultancy encompasses a comprehensive range of services from initial text pre-processing to more complex text processing and analysis including text classification, sentiment analysis, with a particular focus on optimizing techniques for scarce annotated data and implementing effective topic modelling strategies.

Research & Data Analysis Consultant *2023 – Present*
Client: Kunishima Co., Ltd (Japan)
Provided specialized consultancy in research & data analysis to optimize the nomenclature of tourism entities and evaluate visitor sentiment regarding these names. The service entailed a thorough examination of survey data, guidance on appropriate statistical methodologies for robust analysis, and comprehensive text analysis to ensure strategic term selection. This aligned with visitor expectations and informed strategic naming and branding decisions.

NLP Application Consultant *2023*
Client: HeyLaw (Indonesia)
Specialized in providing strategic consulting services for NLP application development, with an emphasis on processing legal texts. Expertise was demonstrated through the design and implementation of custom NLP solutions that significantly enhanced the analysis and interpretation of complex legal documents.

Other consulting experiences:

Data Consultant *2023 – Present*
Client: Industrial Services Policy and Standardization Board - Center for Standardization and Services of The Leather, Rubber and Plastic Industry Services (Indonesia)
Data Consultant & Researcher *2019 – 2022*
Client: AnalyticaID (Indonesia)

SCIENTIFIC PARTICIPATIONS REFLECTION

Engaging in a diverse array of scientific activities has not only expanded my horizons but also equipped me with invaluable experiences and insights. Each endeavor has contributed to my growth as a scholar, consultant, and community advocate, demonstrating my versatility, dedication, and potential to excel in academia.

1. Research

My research journey has been driven by a strong commitment to collaboration and advancing knowledge beyond my immediate network. Early in my master's program, a US professor contacted me after discovering one of my published papers, leading to a successful interdisciplinary partnership that reinforced my belief in the power of cross-border collaboration.

I have also proactively connected with scholars sharing similar interests, notably collaborating with a research team at the University of Miskolc, Hungary. This partnership evolved from a casual idea exchange into a productive, ongoing research endeavor. Additionally, I have facilitated connections between researchers, such as introducing my PhD advisor to a Canadian scholar at a US conference. This interaction sparked a joint project on detecting uncertainty in scientific articles, highlighting my aptitude for networking and its vital role in fostering impactful research.

2. Consulting

As a consultant for research, data, and text analysis, I have had the privilege of applying my expertise to real-world challenges, forging meaningful partnerships, and delivering tailored solutions that drive tangible outcomes. Each consulting opportunity has served as a platform for personal and professional growth, offering unique insights and learning experiences. Crafting proposals, pitching solutions, and negotiating project terms have honed my business acumen and strategic thinking, while maintaining ongoing client relationships has underscored the importance of integrity, transparency, and effective communication.

For instance, my role as a Text Analysis Consultant and Mentor for the University of Oxford has allowed me to delve deep into the realm of multilingual text analysis, particularly in the domain of citizen complaints and report data. From initial text pre-processing to complex text analysis techniques such as sentiment analysis and topic modeling, I have leveraged my expertise to provide actionable insights and drive informed decision-making. Similarly, my consultancy work with industrial services boards in Indonesia has centered on offering strategic guidance on data acquisition and pre-processing, with a keen focus on market trends, business intelligence, and prospective industry analytics. These experiences have not only enriched my perspectives but also underscored my potential to deliver value-driven solutions in diverse organizational settings. Moreover, through these experiences, I have gained insights into the art of seeking and attracting potential partners, both from an economic and scientific standpoint.

3. Other Scientific Participations

In addition to research and consulting, my scientific engagements encompass a wide spectrum of activities aimed at fostering scholarly discourse, nurturing emerging talent, and contributing to the intellectual vibrancy of academic communities. Whether serving as an invited speaker, moderator, or academic committee member for academic events, I am committed to facilitating meaningful exchanges of ideas and insights. My involvement as a conference paper reviewer further underscores my dedication to upholding rigorous academic standards and fostering excellence in scholarly research.

4. Volunteering Experiences

Beyond my professional and academic endeavors, I am deeply invested in giving back to my community and nurturing the next generation of scholars and innovators. Over the past five years, I have dedicated myself to grassroots initiatives aimed at promoting research and data science education among youth in my hometown of Indonesia. Through various outreach programs and collaborative initiatives, I have had the privilege of inspiring and educating young minds about the wonders of research, data analysis, and coding. From organizing webinars on coding literacy to mentoring aspiring researchers, these volunteer experiences serve as a testament to my commitment to fostering a brighter, more inclusive future through education and community engagement.

In conclusion, my scientific participations reflect a rich tapestry of experiences, skills, and passions that uniquely position me to excel as a University Lecturer in Humanities Data Science / Computational Humanities. From forging interdisciplinary collaborations to delivering value-driven consulting solutions and nurturing the next generation of scholars, each endeavor has contributed to my growth as a scholar, consultant, and community advocate. As I embark on this next chapter in my academic journey, I am poised to inspire, innovate, and make meaningful contributions to the field, guided by a steadfast commitment to excellence and a passion for driving positive change.