

TEACHING PORTFOLIO

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TEACHING PHILOSOPHY

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 yellow are volunteering initiatives.
CM: Cours magistral, TD: Travaux dirigés*

Course Name	Host Institution	Language	Period	Type of Course	Credit	Responsibility	Participants	Total Participants
Introduction to Natural Language Processing	Université Marie et Louis Pasteur (France)	En	2024 – present	CM & TD	± 48 h/year	Curriculum designing, planning, teaching, supervising, and grading	BSc « Langues et cultures étrangères », spécialité TAL (L1)	± 45
Language and Informatics	Université Marie et Louis Pasteur (France)	En	2025 – present	CM & TD	± 48 h/year	Curriculum designing, planning, teaching, supervising, and grading	BSc « Langues et cultures étrangères », spécialité TAL (L2)	± 14
Methods and Tools in Natural Language Processing	Université Marie et Louis Pasteur (France)	En	2024 – present	TD	± 16 h/year	Curriculum designing, planning, teaching, supervising, and grading	Master spécialité TAL en « Langues et cultures étrangères » (LLCER) (M1)	± 5
Knowledge Modelling and Representation	Université Marie et Louis Pasteur (France)	En	2025 – present	TD	± 16 h/year	Curriculum designing, planning, teaching, supervising, and grading	Master spécialité TAL en « Langues et cultures étrangères » (LLCER) (M2)	± 5
Practical sessions covering advanced NLP techniques: <ul style="list-style-type: none"> - Rule-based and weakly supervised methods - Machine learning, Large Language Models (LLMs), Retrieval Augmented Generation (RAG) - Synthetic data generation, text classification, text generation, named entity recognition (NER) - Development of NLP applications (prototypes). 	GRETA-CFA de Besançon (France)	En	2023 – present	CM & TD	± 64 h/year	Curriculum designing, planning, teaching, supervising, and grading	Students in vocational training (from bachelor's to doctoral level)	± 8
Web Scraping and Processing Unstructured Data and Texts using Python	Center for Standardization and Services of The Leather, Rubber and Plastic Industry Services (Indonésie)	Ind	2004	Tutorial & workshop	8 h	Curriculum designing, planning, teaching, supervising, and evaluating	Civil servants and scientists	10
Text Mining and its applications using R	AnalyticalD & Airlangga University (Indonésie)	Ind & En	Sept 2020	Tutorial & workshop	8 h	Curriculum designing, planning, teaching, supervising, and evaluating	University professors and scientists	10
Research Methodology	Badakers Indonesia	Indonesian	2020	Online lecture, discussions	2 h	Planning & teaching	Bachelor graduates & students	± 10
Academic Writing & Publication	Badakers Indonesia	Indonesia	2020 – present	Online lecture, discussions	2 h	Planning, teaching & reviewing	Bachelor & master's students	± 10
Basic R program for Statistics	Faculty of Science and Technology, Prince of Songkla University (Indonésie)	Eng	Jan – Jun 2019	TD	± 15 h/year	Teaching & assisting professor in class activities	BSc « Sciences et technologies », spécialité Statistiques appliquées	40

SAMPLE SYLLABUS (BRIEF VERSION)

SUBJECT: Applied Natural Language Processing (NLP)

COURSE PERIOD: 2023 – 2024 (Credits: 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 correctly select and apply NLP techniques relevant to students' specific domain specialties.
- Creation of a project portfolio showcasing students' works, which can be beneficial for students' 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 Retrieval Augmented Generation (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

Few-Shot Learning 1 2

Let's use a cooking analogy to explain LLM (Large Language Models) transfer learning and few-shot learning.

Introduction to Transformers and Large Language Models | Panggih Kusuma Ningrum (2023) 10

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 snapshot is from a Research Methodology course featuring a well-known musician and a study that explored how one of the artist's popular songs could decrease mosquito hostility. The objective is to spark student innovation and analytical thinking, encouraging them to conceive research ideas.

Research is ~~boring~~ FUN!

Acta Tropica
Volume 194, June 2019, Pages 93-99

ELSEVIER

The electronic song "Scary Monsters and Nice Sprites" reduces host attack and mating success in the dengue vector *Aedes aegypti*

Hamady Dieng^{1,2,3,4,5}, Ching Chuin The⁶, Tomomitsu Satho⁴, Fumio Miake⁴, Erida Wydiarnala⁴, Nur Faiza A. Kassim⁷, Nur Aida Hashim⁸, Ronald E. Morales Vargas⁹, Noppawan P. Morales¹

The research team discovered that **playing this song had the effect of deterring female mosquitoes** for a longer period of time. Furthermore, **the complex sound waves** in this song also appeared to have an **impact on the sexual behaviour of *Aedes aegypti* mosquitoes.**

Research Methodology | Panggih Kusuma Ningrum (2023) 12

```
from spacy import displacy
displacy.render(doc1, style="ent", jupyter=True)

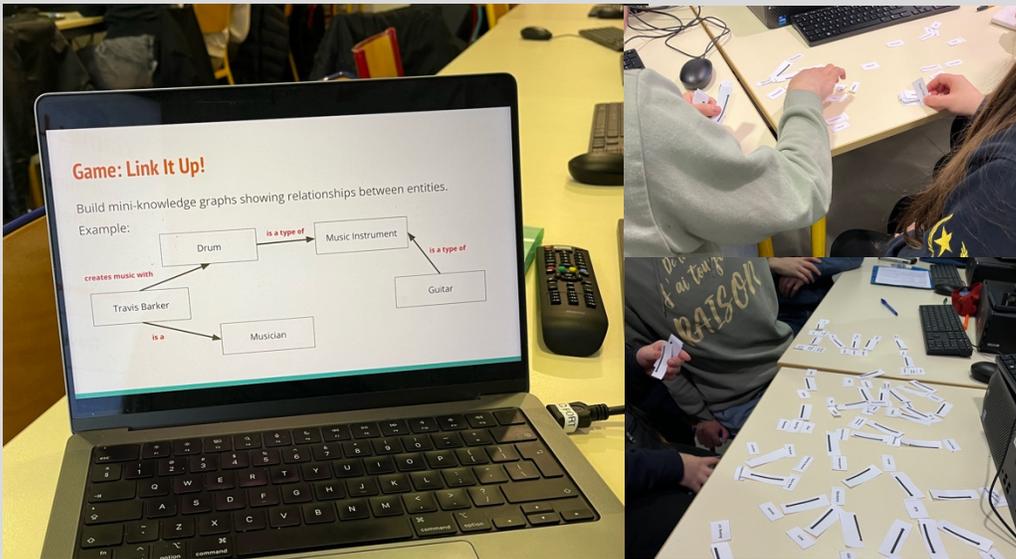
Victor Marie Hugo PERSON was a French NORP poet, playwright, novelist, statesman and human rights activist.

[ ] displacy.render(doc2, style="ent", jupyter=True)

Pablo Ruiz Picasso PERSON was a Spanish NORP painter, sculptor, printmaker, ceramicist, and theatre designer who spent most of his adult life in France GPE.
```

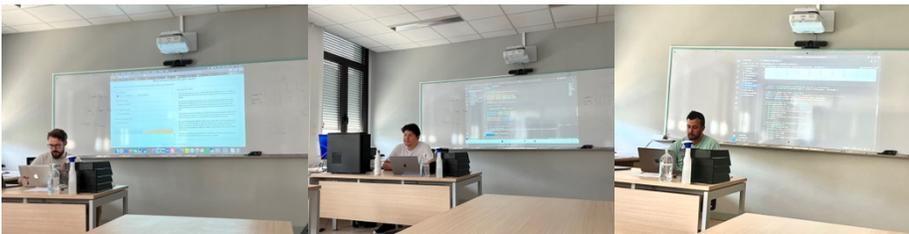
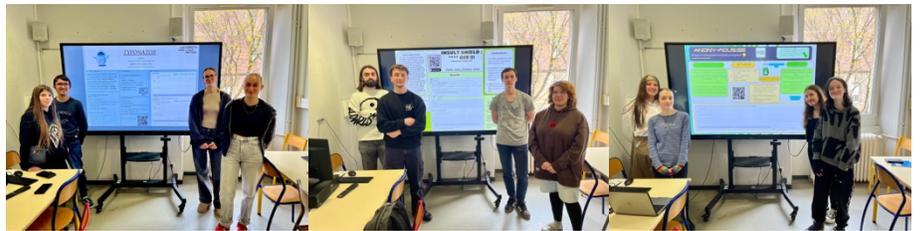
This is a representative example of Python code designed to illustrate the Named-Entity Recognition (NER) task. The code guides students in implementing NER to identify entities such as Person, Nationality, and Country/City/States within textual data.

SAMPLE OF CLASS ACTIVITIES



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

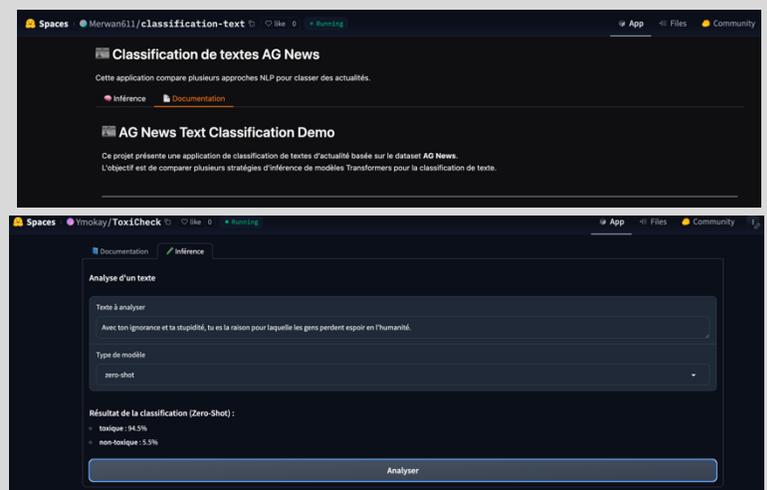
The NLP demo launch day takes place at the end of the semester, when students present the results of their group projects through poster presentations and demo testing.



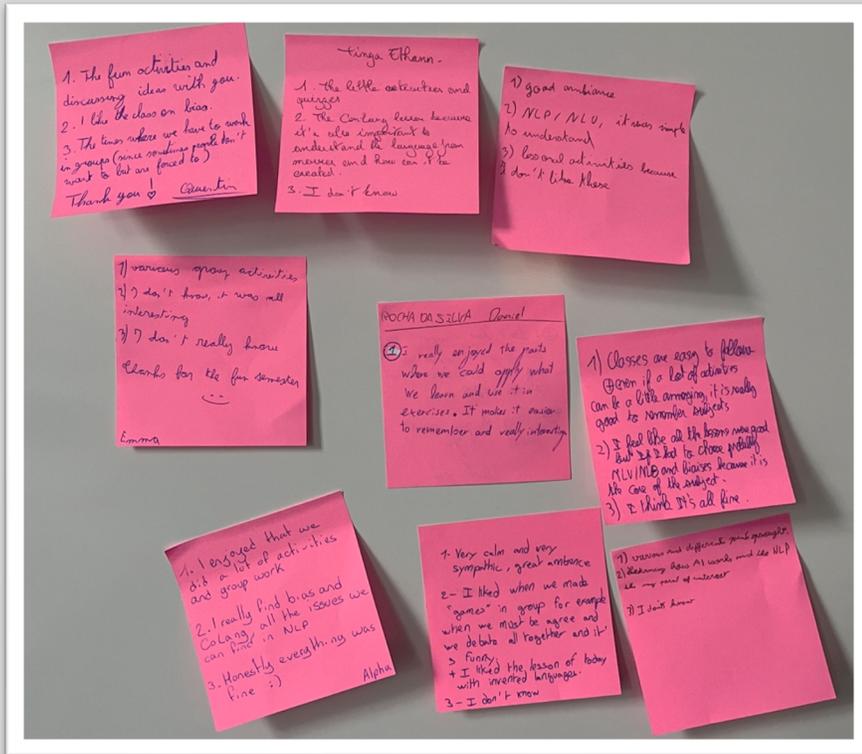
Presentation of personal projects and code reviews.

Samples of NLP demo apps built by my students:

- [ToxiCheck](#)
- [Classification de textes AG News](#)
- [Sarcasme Detection](#)

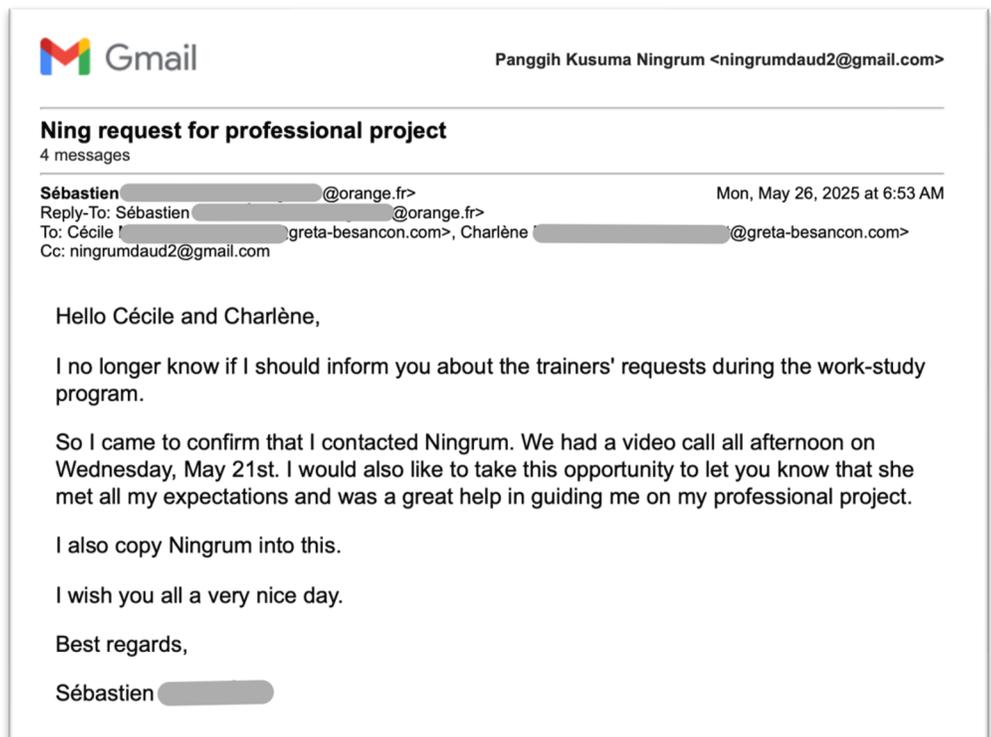


STUDENTS' TESTIMONIALS



Comments and testimonials from students at the end of the 'Introduction to NLP' class.

A comment and testimonial from a student that I have mentored



An evaluation from GRETA-CFA de Besançon (France)

4. Évaluation

- Madame **Panggih Kusuma Ningrum** a fait preuve d'un engagement remarquable et d'une expertise pédagogique confirmée dans l'enseignement du TAL/NLP. Ses méthodes innovantes et son approche pratique ont permis aux apprenants d'acquérir des compétences opérationnelles, saluées tant par les participants que par l'équipe pédagogique.

Fait à Besançon, le 15 décembre 2025

Le Président Ordonnateur du Greta CFA de Besançon



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Pour le Président, par délégation
La Directrice


Nermina TOURNOUX

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 example, in my role as a Text Analysis Consultant and Mentor, I supported a research team at the University of Oxford. This experience allowed me to explore multilingual text analysis in depth, with a particular focus on citizen complaints and reporting data. I contributed across the entire analytical pipeline—from initial text preprocessing to advanced techniques such as sentiment analysis and topic modeling—leveraging my expertise to generate actionable insights and support 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 experience as a reviewer of international journal and conference papers further demonstrates my commitment to maintaining rigorous academic standards and promoting 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.



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