

# Assistant Professor

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## **BARRIERE Valentin / 34 years old / French**



### Personal Details :

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### Formation:

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- **2015-2019 :** PhD at Télécom ParisTech in Computer Science, Machine Learning and Multimodal Sentiment Analysis
- **2010-2015 :** Formation with gap year as engineer at the ENAC (National School of Civil Aviation) in Toulouse, specialization Aeronautical Telecommunications and IT. Erasmus in CVUT (Prague) in 2014/2015, specialization in Image Processing and Machine Learning.
- **2008-2010 :** Preparatory classes MPSI/PSI\* at the lycée Chaptal (Paris 8th) (equivalent to double licence Math/Physics)
- **2008 :** A level with mention
- **2007 :** Obtention of the BAFA (Animator's diploma) and PSC1 (First aid certificate)

### Professional experience:

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- **Universidad de Chile – DCC:** (December 2023 - now) **Assistant Professor in Natural Language Processing**
  - *Objet :* Continue my own research projects and develop new national and international projects with my new colleagues and past collaborators. Teaching Machine/Deep Learning and advising students on research projects.
  - *Mission :* High-level technology monitoring related to **text and multimodal processing**. Investigate how to improve those models and publish results in **international peer-reviewed conferences**. Propose **new tasks and datasets** for the research community.. **Organize workshops and shared-tasks** in top conferences (ACL24). **Area Chair** in CL conferences (COLING24, ACL24) **Write project proposals** of type Fondecyt, Fondef, Tecnología Avanzada, ... Advisante de tesis de alumnos de Magister y pre-grado
- **CENIA:** "Researcher" ( December 2022 -November 2023) **Machine Learning research scientist**
  - *Objet :* Continue my own research projects and propose new projects to collaborate in my research lines, which is between Human-Centered IA and Vision-Language models,
  - *Mission :* High-level technology monitoring related to **text and multimodal processing**. Investigate how to improve those models and publish results in **international peer-reviewed conferences**. Propose **new tasks and datasets** for the research community.. **Organize workshops and shared-tasks** in top conferences (EACL21/ACL22/ACL23/CLEF23). **Write project proposals** of type Fondecyt, Fondef, Tecnología Avanzada
- **European Commission's Joint Research Center :** "Research Project Officer" (April 2020-November 2022) **Machine Learning scientist** for European project in the Text Mining Applications team.
  - *Objet :* Work on projects involving Machine Learning for different applications
  - *Mission :* Design, validate and deploy state-of-the-art models related to **text and multimodal processing**. Investigate how to improve those models and publish results in **international peer-reviewed conferences**. **Deploy state-of-the-art deep learning architectures** for large-scale applications. **Run annotation campaigns** from dataset collecting to inter-annotator-agreement calculation. **Organize workshops and shared-tasks** in top conferences. Advisor for Master students. Contribute to open-source library
- **Supreme Court, Ministry of Justice :** "Entrepreneur d'Intérêt Général" (EIG) (March 2019-January 2020) **Machine Learning scientist** in the context of the [Open Justice project](#)
  - *Objet :* Set up a database of anonymized court cases accessible to every citizen, with a search engine
  - *Mission :* Create a **database of labeled court cases** at the entity level, craft a **Named Entity Recognition** model adapted to legal texts using **state-of-the-art neural methods**, train contextual **language models** and **transformers** over

texts from the legal domain in order to generate efficient embeddings, implement new features for the database research engine using the embeddings, **publish results in international peer-reviewed conferences**

- **CNAM** : “Attaché Temporaire Enseignement et Recherche” (ATER) (October 2018-March 2019) **Lecturer for the master MEDAS (Big Data and Social Analysis)** with Gishlaine Chartron (Dicen-IdF)
  - *Objet* : Lecturer and researcher
  - *Mission* : **Prepare and teach classes** : from lectures to seminars : Data mining, Algorithmics, Sentiment Analysis, NLP, Deep Learning for NLP, Data visualization, ...
  
- **Télécom ParisTech** : PhD preparation (mid-october 2015-now) **Hybrid Models for Opinion Analysis in Speech Interactions** with Chloé Clavel and Slim ESSID (S2A Team)
  - *Object* : Using sequential graphical models with a hybrid approach to integrate linguistic rules combined with acoustic features in Machine Learning algorithms
  - *Mission* : **Prepare PhD** about attitudes detection in speech interactions, detection of likes and dislikes, **Teaching Assistant** in Machine Learning classes for final year MS students (SVM, CRF, NN, HMM, K-means, etc..), **Tutor**/Scientific expert in NLP/python to guide a final year MS students group during a one-year project on tweet sentiment analysis, **Secondary reviewer** for **ICMI 2016** and **PEOPLES@Coling 2016**, Reviewer for **IVA 2018**, **ICMI 2018** and **WACAI 2018**, **Teacher** of the Sentiment Analysis hands-on session at [SMART School on Computational Social and Behavioral Sciences](#)
  - *Fundings* : [Chaire MLBD : Machine Learning for Big Data](#)
  
- **IRIT** : 6 months research internship (2015) **Intern researcher, Classification and Regression on audio using Deep Learning** with Thomas Pellegrini ([SAMoVA](#) Team):
  - *Object* : Understand and code Deep Learning models and apply them on acoustic data
  - *Mission* : State of the art, learning and computation of the most efficient Neural networks for the audio classification. Challenge Interspeech 2015 (classification of vocal signal) and MediaEval 2015 (regression regarding the emotional aspect of a song)
  
- **LGM** : 7 months contract (2013/2014) **Engineer MOC/Quality, Project ownership assistance for the DSNA (Directorate of Services of Aerial Navigation)** :
  - *Object* : Engineer integrated in the 2nd level support team
  - *Mission* : Risk and fault management, Preconisations, Operational sites supporting management, Coordination with project ownership, Creation of datasheets for all the softwares used by the civil aviation, Automation of the creation and generation of monitoring indicators, Reader's manual for generation of indicators
  
- **CEA Saclay** : 1 month Internship (2011) **Operating and Maintenance Service of the Orphée's reactor**:
  - *Object* : First approach as engineer.
  - *Mission* : Immersion in the service, global view of the different's gestion's possibilities of a multidisciplinary team, VB coding.
  
- **Telligo ; Association Regards** : Camp animator every summer (2008 to 2012) France and Ireland :
  - *Object* : Learn responsibilities, Teamwork, long term gestion of a project and a budget
  - *Mission* : Be in charge of children groups, preparing workshops the morning, games the afternoon and special games the night. Manage and lead an animator team and a budget abroad.

### Skills:

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- **Natural Language Processing** : Computational Linguistics, Neural Language Models, Word embeddings and Learned Representations, Sentiment Analysis, Opinion dynamics modelization, Interaction modelization, *nltk*, *gensim*, *spacy*
- **Machine Learning** : Graphical sequential models (CRF, HMM, HCRF, MV-HCRF, LDCRF), Deep Learning (RNN, CNN, Hierarchical Models with Attention), Representation Learning, Multi-view modeling, Feature Selection (Lasso, CFS, CCA, ...), SVM, PCA, K-mean, K-NN, GMM, *Theano*, *Keras*, *scikit-learn*, *hCRF-Library*, *hCRF-light*, *Pytorch*, *Flair*, *transformers*
- **Acoustic** : LF model, Speech, Descriptors extraction, *COVAREP*, *OpenSMILE*, *AuDeep*
- **Image processing** : Compression/reconstruction and restauration methods, Filters and transformations, Segmentation, Edge detection, Analysis and Classification, Statistical approaches
- **Signal processing** : Analogical, Numerical, Analogical filtering, Signal transmission, DSP, Estimation Statistics, Stochastic processes

- **Programmation:** Matlab, Python, C, Latex, php
- **Teamwork, Technical coordination**

### Spoken languages:

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- **English :** 1<sup>st</sup> language, numerous stays in english speaking countries, C1 level (TOEFL)
- **Spanish :** conversant, 7 months of immersion in South America

### Others:

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- **Social help:** July 2007 (3 weeks) : Integration of autistic children in groups of « normal » ones
- **Math/Physics teacher :** From 2010 to 2013, several students in high school and University (Licence)
- **Improvisation theatre :** In a company.
- **Hobbies :** *Music* : guitar and piano, passionate in general (Creator of a broad-mindedness project at the ENAC); *(Former) President of MANAO* : humanitarian association of the ENAC
- **Sports:** Tennis, Badminton, Rugby.

### Publications:

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- Mateo Lostanlen, Nicolas Islas, Jose Guillen, Felix Veith, Cristian Buc, **Valentin Barriere** : "**Scrapping The Web For Early Wildfire Detection**", submitted to CVPR 2025 (rank A\*)
- Felipe Urrutia, Cristian Buc, Roberto Araya, **Valentin Barriere** : "**Unsupervised Automatic Short Answer Grading: a Weakly Supervised Explainable Approach**", submitted to ACL 2025 (rank A\*)
- **Valentin Barriere** and Sebastian Cifuentes : "**A Study of Nationality Bias in Names and Perplexity using Off-the-Shelf Affect-related Tweet Classifiers**", accepted to EMNLP 2024 (rank A\*)
- Martin Claverie, **Valentin Barriere**, Raphaël d'Andrimont, Renate Koeble, Marijn Van der Velde : "**In-season Crop Type Mapping: An accuracy evaluation at European scale using the CHEAP Database**", presented at EO4AAGRI 2024
- **Valentin Barriere** and Sebastian Cifuentes : "**Are Text Classifiers Xenophobic? A Country-Oriented Bias Detection Method With Least Confounding Variables**", accepted to Coling 2024 (rank A)
- Nailia Mirzakhmedova, Johannes Kiesel, Milad Alshomary, Maximilian Heinrich, Nicolas Handke, Xiaoni Cai, and **Valentin Barriere**, Doratossadat Dastgheib, Omid Ghahroodi, Mohammad Ali Sadraei, and others : "**The Touché23-ValueEval Dataset for Identifying Human Values behind Arguments**", accepted to Coling 2024 (rank A)
- **Valentin Barriere**, Felipe del Rio, Andres Carvallo, Carlos Aspillaga, Eugenio Herrera-Berg, Cristian Buc : "**Targeted Image Data Augmentation Increases Basic Skills Captioning Robustness**", in Proc. GEM, EMNLP 2023
- Felipe Urrutia, Cristian Buc, **Valentin Barriere** : "**Deep Natural Language Feature Learning for Interpretable Prediction**", in Proc. EMNLP 2023 (rank A\*)
- **Valentin Barriere**, Joao Sedoc, Shabnam Tafreshi, Salvatore Giorgi : "**Findings of WASSA 2023 Shared Task on Empathy, Emotion and Personality Detection in Conversation and Reactions to News Articles**", Proc. WASSA , ACL 2023
- **Valentin Barriere**, Martin Claverie, Maja Schneider, Guido Lemoine, Raphaël d'Andrimont : "**Boosting Crop Classification by Hierarchically Fusing Satellite, Rotational, and Contextual Data**", *Remote Sensing of Environment*
- **Valentin Barriere**, Alexandra Balahur : "**Multilingual Multi-target Stance Recognition in Online Public Consultations**", *MDPI Mathematics, special issue on Human Language Technology, February 2023*
- Alexander Bondarenko, Maik Fröbe, Johannes Kiesel, Ferdinand Schlatt, **Valentin Barriere**, Brian Ravenet, Léo Hemamou, Simon Luck, Jan-Heinrich Reimer, Benno Stein, Martin Potthast, Matthias Hagen : "**Overview of Touché2023: Argument and Causal Retrieval**", In Proc. ECIR 2023 (rank A)
- **Valentin Barriere**, Brian Ravenet, Léo Hemamou, Simon Luck : "**CLEF Lab: Intra-Multilingual and Multi-target Stance Classification in Online Participatory Democracy Platform**", *accepted as a shared task at CLEF23*
- **Valentin Barriere**, Guillaume Jacquet, Léo Hemamou : "**CoFE: A New Dataset of Intra-Multilingual Multi-target Stance Classification from an Online European Participatory Democracy Platform**", in Proc. *AAACL-IJCNLP 2022* (rank A)

- **Valentin Barriere, Martin Claverie** : "Multimodal Crop Type Classification fusing Multi-spectral Satellite Images with Farmers Crop Rotations and Local Crop Distribution.", *CDCDEQ, IJCAI 2022*
- **Valentin Barriere, Shabnam Tafreshi, Joao Sedoc, Sawsan Alqhatari** : "WASSA 2022 Shared Task: Predicting Empathy, Emotion and Personality in Reaction to News Stories.", *Proc. WASSA, ACL 2022*
- **Valentin Barriere, Chloé Clavel, Slim Essid** : "Opinions in Interactions : New Annotations of the SEMAINE Database", in *Proc. LREC2022 (rank B)*
- **Valentin Barriere, Alexandra Balahur, Brian Ravenet** : "Debating Europe: A Multilingual Multi-Target Stance Classification Dataset of Online Debates", in *Proc. PoliticalNLP, LREC2022*
- **Shabnam Tafreshi, Orphee De Clercq, Valentin Barriere, Sven Buechel, João Sedoc, Alexandra Balahur** : "WASSA 2021 Shared Task: Predicting Empathy and Emotion in Reaction to News Stories", in *Proc. WASSA 2021*
- **Valentin Barriere, Guillaume Jacquet** : "How does a Pre-Trained Transformer Integrate Contextual Keywords? Application to Humanitarian Computing.", in *Proc. ISCRAM 2021*
- **Valentin Barriere, Alexandra Balahur** : "Improving Sentiment Analysis over non-English Tweets using Multilingual Transformers and Automatic Translation for Data-Augmentation", in *Proc. Coling 2020 (rank A)*
- **Valentin Barriere, Amaury Fouret** : "May I Check Again? – A simple but efficient way to generate and use contextual dictionaries for Named Entity Recognition. Application to French Legal Texts.", in *Proc. NoDaLiDa, Turku, Oct. 2019*
- **Valentin Barriere, Gérald Kembellec** : "A short review of sentiment-based recommender systems", in *Proc. DTUC, Paris, Oct. 2018*
- **Valentin Barriere, Chloé Clavel, Slim Essid** : "Classification d'attitude dans des paires adjacentes à l'aide de champs aléatoires conditionnels cachés", in *Proc. WACAI, Porquerolles, June. 2018*
- **Valentin Barriere, Chloé Clavel, Slim Essid** : "Attitude Classification in Adjacency Pairs of a Human-Agent Interaction with Hidden Conditional Random Fields", in *Proc. ICASSP, Calgary, Apr. 2018 (rank A\*)*
- **Valentin Barriere** : "Hybrid Models for Opinion Analysis in Speech Interactions", in *Proc. ICMI, Glasgow, Nov. 2017 (rank B)*
- **Valentin Barriere, Chloé Clavel, Slim Essid** : "Opinion Dynamics Modeling for Movie Review Transcripts Classification with Hidden Conditional Random Fields", in *Proc. INTERSPEECH, Stockholm, Aug. 2017 (rank A)*
- **Thomas Pellegrini, Valentin Barriere** : "Time-continuous estimation of emotion in music with recurrent neural networks", in *Proc. Working Notes Proceedings of the MediaEval 2015 Workshop, Wurzen, Sept. 2015*

### Scientific Event Organization:

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- **CLEF** -- Conference and Labs of the Evaluation Forum: Touché LAB 2023 (Lab co-organizer, shared-task-4 main organizer)
- **WASSA** -- Workshop on Computational Approaches to Subjectivity, Sentiment & Social Media Analysis : at **ACL24** (co-organizer, shared task co-organizer), at **ACL23** (co-organizer, shared task main organizer), at **ACL22** (co-organizer, shared task main organizer), at **EACL21** (co-organizer, shared task co-organizer)
- **WACAI** – Workshop sur les Affects, Compagnons Artificiels et Interactions : social event organizer

### Teaching:

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2024 :

- **Assistant Professor:** Data Mining, Deep Learning

2020 – 2022 :

- **Assistant Professor:** 40h -- Machine Learning option class for Master students at CNAM-Toulons

2019 – 2020 :

- **Assistant Professor:** 35h -- Master Big Data and Social Analysis at CNAM, Data Mining II course

➤ **Teaching Assistant:** 54h -- Machine Learning class at ESILV (Master Engineer students)

2018 – 2019 :

➤ **Assistant Professor:** 96h -- Master Big Data and Social Analysis at CNAM (Conservatoire National des Arts et Métiers), Data Mining II course

2015 – 2018 :

➤ **Teaching Assistant:** 75h -- Machine Learning Seminars for the Master and Engineer students : SVM, K-means, CRF, K-NN, Random Forest, LDA, PCA, Naïve Bayes, HMM, ...

➤ **Student advisor Project:** 32h -- Scientific expert in NLP/python to guide a 4 Master's students group during a one-year project about question answering + Scientific expert in NLP/python to guide a 4 Master's students group during a one-year project about tweet sentiment analysis

2010 – 2015 :

➤ **Tutor:** 2-4h/week -- Math classes to high school and Bachelor's students

## Grants:

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**Won :**

➤ **Concurso U-inicia:** Estudios de sesgos sociales en modelos de lenguajes largos (**PI/Director**), **8k USD** started in November 2024

➤ **Fondef -- Advanced Technological Research Contest 2024:** An AI system for nation-wide agricultural production monitoring based on crowd-sourced and remote-sensing data (**PI/Director**), **700k USD** started in October 2024

➤ **Challenges for post-fire forest recovery contest:** WWF Wildfire Watch and Fight: An early wildfire detection AI-driven platform and infrastructure (**PI/Director**), **90k USD**, started in August 2024

➤ **Fondef -- IDeA I+D 2024:** fAIrefighter : A wildfire early detection and spread prediction AI-driven decision support tool (**PI/Director**), **230k USD**, started in June 2024

➤ **Fondo de apoyo extraordinario a proyectos de investigacion para academicos/as en etapa inicial de la carrera academica FCFM:** Multimodal Argumentation Mining in Groups (**PI/Director**), **13k USD** started in June 2024

**Submitted :**

➤ **Fondecyt – Iniciación 2025 :** Multimodal Argumentation Mining in Groups Assisted by an Embodied Conversational Agent (**PI/Director**), submitted in April 2024

## References:

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- **Alexandra Balahur** : Reasearch Officer at JRC -- ☎(+32)22952562
- **Chloé Clavel** : Research Director at INRIA -- ☎(+33)145817254 ; [Website](#)
- **Thomas Pellegrini** : Associate Professor at IRIT-UPS -- ☎(+33)561556886 ; [Website](#)