Wilfried L. Bounsi

MSc Student in Advanced Computer Science at the University of Oxford.

(Seeking to pursue a PhD in AI/NLP)

EDUCATION.

University of Oxford
Oxford, United Kingdom — Oct 2021 - Ongoing

- ★ MSc. in Advanced Computer Science, **acceptance rate of 4.7%**.
- ★ *Relevant Coursework:* Advanced Topics in ML, Quantum Computing, Artificial Intelligence, Computational Learning Theory, Computational Game Theory.

National Polytechnic Institute of Toulouse - ENSEEIHT
Toulouse, France — Sep 2019 - Sep 2021

- ★ MEng. in Computer Science and Applied Mathematics, majored in High Performance Computing and Big Data. **GPA: 3.88/4.0**
- ★ *Relevant Coursework:* Optimization, Machine Learning, Bayesian Analysis, Data Assimilation, Advanced Statistics, Advanced Linear Algebra, HPC, Cloud Computing, Operational Research, Distributed Systems and Algorithms, Software Engineering.

University of Burgundy, School of Engineering
Dijon, France — Sep 2018 - Jun 2019

- ★ 3rd year BEng. equivalent, ranked **1st/84**, Head of Batch.
- ★ *Relevant coursework:* C/C++/Java Programming, Image/Signal Processing.

National Advanced School of Engineering of Yaounde
Yaounde, Cameroon — Sep 2015 - Jun 2018

- ★ Most selective engineering school in Cameroon, **acceptance rate of 4%**.
- ★ Ranked **16th (200 selected) over 5000+** applicants at the entrance examination contest.
- ★ 3 years of mathematics, physics and computer science. Ranked in the **top 5%**.
- ★ *Relevant Coursework:* General/Linear Algebra, Multidimensional analysis, Advanced Calculus, Probabilities and Statistics, Data structures and Algorithms.

WORK EXPERIENCES.

NLP Data Scientist and Backend Engineer @ ProfessorBob.ai
Paris, France — Sep 2020 - Ongoing

- ★ Designed and implemented a Knowledge Graph construction pipeline from raw course materials.
- ★ Designed and implemented a search engine and content-based recommender system for documents (graph nodes), based on vector space search, and weighted page rank algorithm.
- ★ Developed an interactive web app for user queries and visualization of results.
- ★ Improved document classification quality by leveraging the constructed Knowledge Graph. First in the supervised case, through the exploration and implementation of state of the art heterogeneous Graph Neural Networks. Second, in the semi-supervised case, through the implementation of a Rocchio Classifier over message passing updated embeddings. Finally, in the unsupervised case, through the implementation of graph community detection algorithms.
- ★ Results were quantitatively evaluated using F1-Score and MRR for the supervised and semi-supervised case. In particular for the supervised case, our method outperformed its baseline, a fined tuned BERT model, by **95%**. An extensive qualitative evaluation was conducted for the unsupervised case, again our method outperformed all of its baselines, among which KMeans, LSA, and LDA.
- ★ Developed Chatbot and Adaptive Learning plugins for Moodle integration.
- ★ Developed a GraphQL API to interact with the chatbot's backend.
- ★ *Tools:* Numpy, Pandas, Matplotlib, Pytorch, DGL, Transformers, Gensim, Flair, Scikit-Learn, Networkx, Flask, PHP, Graphene.

Data Scientist Intern @ Pro BTP Group
Paris, France — Jun 2020 - Aug 2020

- ★ Worked on **anomaly detection in time series of financial data.**
- ★ Implemented anomaly detection algorithms for uni/multi-dimensional time series.
- ★ Developed and deployed an interactive web dashboard allowing the visualization of detected anomalies by the staff.
- ★ Algorithms for unidimensional time series were based on the AR, MA, ARMA, and ARIMA models. The discovery of correlated features motivated the implementation of another algorithm for multidimensional time series based on the VAR model. An extensive qualitative evaluation confirmed the effectiveness of the implemented algorithms.
- ★ *Tools:* Numpy, Pandas, Seaborn, Dash, statsmodels, Flask.

CONTACTS

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LANGUAGES

FRENCH	Native Language
ENGLISH	C1 Level IELTS Academic 8.0/9.0 TOEFL 100/120

SKILLS

- **Languages:** Python, C/C++, Java, Dart, PHP, Ocaml, Julia, Octave/Matlab, HTML, CSS, JavaScript.
- **Data Science:** Numpy, Pandas, Matplotlib, Seaborn, Networkx, Dash, R, statsmodels, Pytorch, Scikit-Learn, Tensorflow/Keras, DGL.
- **HPC & Big Data:** Hadoop, Spark, OpenMP.
- **Cloud Computing:** Kubernetes, AWS, Docker.
- **Web & Mobile development:** Flask, Django, Flutter, Bootstrap, Vuejs, GraphQL.
- **Project Management:** Scrum, Git, Maven.

ACHIEVEMENTS

- 20+ completed CS online courses. *view*
- Won a prize at the Hacking Health Hackathon at Besançon. *view*
- Team ranked 7th/40 at the 2021 Edition of the Oxford vs Cambridge G-Research Quant Finance Algorithmic Challenge.

HOBBIES

Jogging, Football, Mangas, Reading.

Data Engineer Research Intern @ Toulouse Institute of CS Research

Toulouse, France — Oct 2019 - Apr 2020

- ★ Worked part-time within the Sepia team on the subject: **Adapting IO and CPU Usage in a Hadoop infrastructure.**
- ★ The goal was to find, for a given workload, the best way to compress its input data, to balance the use of I/Os and CPU in the Hadoop cluster, and achieve the best performances. The intuition was that a High compression level can relieve the network and disk I/Os but overload the processor, while a low compression level can relieve the processor but overload the I/Os.
- ★ I Performed cluster setup and administration, MapReduce workload development, visualization and descriptive statistics on execution metrics, interpretation of results and suggestion proposals for performance improvement.
- ★ My results showed that for small data sizes (< 10Gb), a couple of compression strategies stood out and yielded better results than with the uncompressed data. However, for higher data sizes, decompression overload becomes too high and running on uncompressed data lead to better results.
- ★ *Tools*: Hadoop, Bash, Numpy, Pandas, Matplotlib, compression algorithms.

Software Engineer Intern @ Polytech Valor

Yaounde, Cameroon — Jun 2016 - Sep 2017

- ★ Co-developed the web site of Algeria embassy in Cameroon. *view*
- ★ Teaching Assistant during the 2017 edition of the gov sponsored IT security training.

SIDE PROJECTS.

- ★ **Quidely**. The largest restaurant catalog and meal delivery platform in Cameroon, with 1400+ listed restaurants, available on mobile and web. Built with Flutter, Python, Django, GraphQL, Bootstrap, Vuejs. *view*
- ★ **Skylon**. One of the largest and most impactful e-learning platform in Cameroon, with over 15k active users, that received a recognition from the GEFL. Built with Python, Django, Bootstrap, Vuejs. *view*
- ★ **Hidoop**. A simple yet fault tolerant, clone version of Apache Hadoop, built with Java. Recognized as best student project by supervisor Dr Philippe Mauran.
- ★ **AntSimulation**. Application for simulating colonies of social insects, more specifically that of anthills. Built with Java, JavaFX. *view*
- ★ **Wifibot**, a remote control and monitoring application for a 4-wheel robot with a camera, via the wifi network. Built with C++, QT. *view*

EXTRA ACTIVITIES.

- ★ Active open source contributor on github.
- ★ Student tutor in Mathematics and AI, High School and College level.
- ★ General Secretary of the Junior Enterprise of Polytechnique Yaoundé (2018).