Zuokun OUYANG Ph.D. Candidate

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zuokun-ouyang

Research Interests

I am interested in Machine Learning and Data Mining for Time Series Analysis and Forecasting. My current focuses include:

- Multivariate time series forecasting with deep neural networks and hybrid models.
- Time series preprocessing methods for analysis and forecasting.
- Time series clustering and classification with similarity measurement.

Education

University of Orléans Orléans, France

Ph.D. Candidate in Computer Science *Oct. 2019 – Present*
Advisors: Assoc. Prof. Philippe Ravier, Assoc. Prof. Meryem Jabloun
Funding: This research was funded by ANRT (Association Nationale de la Recherche et de la Technologie) CIFRE *N°* 2019/0551 contracted with ATTILA Gestion.

University of Orléans Orléans, France

Master of Science in Computer Science *Sep. 2017 – Jun. 2018*

Ecole Polytechnique of University of Orléans Orléans, France

Ingénieur Diplômé in Computer Engineering *Sep. 2015 – Jun. 2018*

Beijing Institute of Technology Beijing, China

Bachelor of Engineering in Electronics & Information Engineering *Sep. 2012 – Jun. 2016*

Professional Experience

ATTILA Gestion Lyon, France
Machine Learning Engineer and Data Analyst *Oct. 2019 – Present*
Data Analyst Intern *Apr. 2018 – Sep. 2018*

- Utilized Power BI and Excel to identify, extract, and analyze different internal indicators of multiple ATTILA agencies.
- Utilized R, Python to build time series forecasting models on enterprise data and standard datasets such as the M-Competitions dataset and the UCI Machine Learning Repository.
- Performed client segmentation using both traditional and time series clustering methods.
- Utilized TensorFlow to construct multivariate time series prediction models.
- Designed a pipeline to evaluate the performance of different time series forecasting models.

University of Orléans, Laboratory PRISME Orléans, France
Research Assistant *Jan. 2019 – Jul. 2019*

- Literature study of statistical, machine learning, and deep learning models for time series analysis and forecasting.
- Compared and evaluated the performance of statistical, machine learning, and deep learning models for univariate time series forecasting tasks.

eContent Store Sàrl Luxembourg
Software Development Engineer Intern *Jun. 2017 – Aug. 2017*

- Acted as one of the core developers of the Android development team.
- Implemented several major features and improvements of our product, including better Augmented Reality toolkit choice, natural features training pipeline, and many bug fixes.
- Independently developed a user-end WebGL tool to help training natural features required by the NFT mode in ARToolKit.

Selected Projects

iOS application *RestauRank* Orléans, France
iOS Development project *Mar. 2018 – Apr. 2018*

- A map application that helps users discover the best restaurants nearby and the fastest route to get there.
- Used Google Maps SDK for map display and navigation and Google's Geolocation API to obtain restaurants rating info.
- Used pure Swift for the implementation.

Archaeological ceramic shards segmentation by CNN Orléans, France
Deep Learning Project *Jan. 2018 – Mar. 2018*

- Built 2D FCNs to segment the depth maps of ceramic shards to find the decorated region.
- Clustered the segmented regions into different classes.
- Evaluated FCN with different segmentation algorithms such as k-means and DBSCAN.

Interactive real-time earthquake map Orléans, France
Java Object-Oriented Programming Project *Apr. 2017 – May. 2017*

- UI and icons in Processing, interactive map in Unfolding, mouse's hover and click realize additional feedback.
- Used different shapes to distinguish cities and quakes, used colors, sizes, and icons to distinguish depth, levels, and time.

Sound localization system on microphone array Orléans, France
Graduation project of Beijing Institute of Technology *Mar. 2016 – May. 2016*

- Developed a microphone array system that can detect the location of a sound source in a 2D space with Raspberry Pi3, Arduino UNOs, step motor, and an eight-microphone array.
- Implemented DOA-TDOA & GCC algorithms. Developed in MATLAB and Python.

Skills

Programming Python, Java, C/C++, C#, Swift, Matlab, R, HTML, CSS, PHP, SQL, Bash, LaTeX
Frameworks/libraries TensorFlow, Keras, scikit-learn, Unity, ARToolKit, OpenCV
Tools PowerBI, Vim, Git, Linux
Languages English (TOEIC/855, proficient), French (TCF/B2, upper-intermediate), Mandarin (mother tongue)

Awards

- College Student Academic Scholarship, four times, Beijing Institute of Technology *2012 – 2015*
- Provincial 2nd Prize, Beijing University Students' Calligraphy and Painting Exhibition *2014*
- National 3rd Prize, National University Students' Painting, Calligraphy, and Photography Joint Exhibition *2013*
- National 3rd Prize, The 25th Chinese Chemistry Olympiad *2011*
- Provincial 1st Prize, The 28th Chinese Physics Olympiad *2011*
- Provincial 1st Prize, The 20th China High School Biology Olympiad *2011*

Publications

1. **Z. Ouyang**, P. Ravier, and M. Jabloun, "Stl decomposition of time series can benefit forecasting done by statistical methods but not by machine learning ones," *Engineering Proceedings*, vol. 5, no. 1, Jul. 2021, Full Paper.

Talks

- Use Time Series Prediction Methods to Forecast Customers Number, *1st Collaborative Workshop on Artificial Intelligence Applications for SMEs*, Orléans, France, Jun. 2018.

Other Experience

- Second Chinese New Year Celebrations Volunteer, *Orléans and Yangzhou Government Feb. 2017*
- President, *Association of Calligraphy of Beijing Institute of Technology* *2013 – 2015*

Hobbies

Basketball, Reading, Chinese Calligraphy, Singing, Fitness.