Xiaoyu Lin

Website: linxiaoyu1.github.io
Email: xiaoyu.lin@inria.fr, clementinexiaoyu@gmail.com
LinkedIn: xiaoyu-lin-51146ba3

EDUCATION

Inria Grenoble-Rhône-Alpes, RobotLearn Team Grenoble, France
Ph.D. in Machine Learning, Supervisor: Xavier Alameda-Pineda, Laurent Girin 01/11/2020–25/06/2024
Research topic: Deep Latent-Variable Generative Models for Multimedia Processing

École Centrale de Pékin, Beihang University Beijing, China
M.S. in System Engineering, GPA: 3.75/4.00 01/09/2018–01/06/2020
Master Thesis: Cloud Computing Center Workloads Simulation Based on Time Series Generation

École CentraleSupélec (Cursus Centrale) Paris, France
Engineer's degree, GPA: 3.60/4.00 01/09/2016–01/06/2018

École Centrale de Pékin, Beihang University Beijing, China
B.S. in Information and Computer Science, GPA: 3.90/4.00 01/09/2013–01/06/2017

INDUSTRIAL EXPERIENCE

EM Data – Machine Learning Research Intern Shanghai, China, Jul. 2020–Oct. 2020

- Precipitation nowcasting radar map sequences prediction with deep generative models such as GAN.

Walnut Algorithm – Machine Learning Research Intern Paris, France, May 2019–Nov. 2019

- Statistical studies of Limit Order Book data, building trading strategies with statistical and machine learning algorithms.

Schlumberger – Artificial Intelligence Research Intern Beijing, China, Jul. 2018–Oct. 2018

- Application of time-series clustering, classification and statistical prediction algorithms on large-scale time-series data for unsupervised drill bit speed pattern recognition and prediction.

Schlumberger – Software Engineer Intern Beijing, China, Jul. 2017–Sep. 2017

- Software algorithm analysis, fluid mechanic problem analysis using Bernoulli Equation.

PUBLICATIONS AND SOFTWARES

1. X. Lin, L. Girin, and X. Alameda-Pineda, "Mixture of dynamical variational autoencoders for multi-source trajectory modeling and separation", in *Transactions on Machine Learning Research (TMLR)*, 2023.

   Scientific significance: This paper introduces a novel weakly supervised method for separating trajectories from multiple sources, leveraging deep probabilistic generative models and variational inference. The versatility of the proposed model extends its applicability across various scientific and engineering domains.

   Software: MixDVAE

2. X. Lin, X. Bie, S. Leglaive, L. Girin, and X. Alameda-Pineda, "Speech modeling with a hierarchical transformer dynamical vae", in *2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Rhodes, Greece, 2023, pp. 1–5.

   Scientific significance: This paper investigates an innovative deep probabilistic generative model that merges Transformer architecture with sequential probabilistic models, enhancing the analysis of sequential data, particularly in the domain of speech signals.

   Software: LigHT-DVAE

3. X. Lin, S. Leglaive, L. Girin, and X. Alameda-Pineda, "Unsupervised speech enhancement with deep dynamical generative speech and noise models", in *Interspeech*, Dublin, Ireland, 2023.

   Scientific significance: This paper explores a novel scalable unsupervised speech enhancement method utilizing deep probabilistic generative models, offering valuable insights into both the potential and challenges inherent in employing such models to address problems under distribution shift settings.

   Software: DDGM-SE

Teaching

- **Teaching Assistant** at University Grenoble Alpes (30h) Fall semester 2021
  Analyse élémentaire & Introduction au calcul scientifique (MAP101)

Professional Services

Conference Reviewer: ACM MM (2021-2024), IEEE ICASSP 2024, IEEE ICRA 2024

Invited Presentations

- **Deep Probabilistic Generative Models for Audio/Visual Tasks**, LTCI, Télécom Paris, Institut polytechnique de Paris, Nov. 2023. slides

- **Dynamical Variational Auto-encoder – from Theory to Application**, joint talk with Xiaoyu Bie, SKL, Nanjing University, Oct. 2023. slides

Professional Formations

- **Machine Learning Summer School** Okinawa, 2024
  Lectures on various topics which are at the core of modern Machine Learning, from fundamentals to state-of-the-art practice.
- **PRAIRIE / MIAI Aritificial Intelligence Summer School** Online, 2021
  Lectures conducted by renowned experts in different areas of artificial intelligence, including computer vision, machine learning, natural language processing, robotics, and healthcare.

Scholarships and Awards

- Travel support for the Machine Learning Summer School in Okinawa, Japan ($\sim$ 650\$) 2024
- Travel grant for the 30th ACM International Conference on Multimedia in Lisboa, Portugal (1000\$) 2022
- First class scholarship for studies of Beihang University 2016
- China national aero-technology corporation scholarship 2015
- China national scholarship 2014

Supervision and Mentorship

Co-supervision/collaboration: Master thesis of Ghazi Shazan Ahmad on Deep Statistical Manifold Learning.