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Mingming Qiu

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Professional Experience & Main Projects

PhD Engineer	**R&D of Électricité de France**	**Feb 2019 – Apr 2023**

- Proposed new algorithms to create dynamic services using reinforcement learning with Python in Pytorch.
- Proposed new algorithms to make machine learning algorithms explicable.
- Designed a system to realize the creation of dynamic and explicable services.

Practical work Assistant	**Télécom Paris**	**Sep 2019 – Jan 2020**

- Helped and guided students to write Java and understand its principle and explained the principle of Git.

Research Engineer	**Télécom Paris**	**Nov 2018 – Jan 2019**

- Researched on existing logical methods to realize smart homes.
- Studied and developed APIs for software Protégé in Java.
- Studied and created use cases using software openHAB for smart homes.

Trainee	**R&D of Électricité de France**	**Apr 2018 – Sep 2018**

- Modeled low-carbon connected homes and their services using the logical methodology.
- Created an application in Java to visualize the model.
- proposed a methodology to generate IoT services automatically.

Master Student	**CentraleSupelec, Électricité de France**	**Dec 2017 – Apr 2018**

- Studied the working modes of turbines
- Reconstructed the total flow model based on the flow of turbines and that of valves in Matlab.
- Optimized the coefficients of the constructed model in Matlab.

Bachelor Student	**Wuhan University**	**Mar 2016 – Jun 2016**

- Used the Support Vector Regression (SVR) to build a model for a double tank and the Generalized Predictive Control (GPC) to predict the water levels of this tank in Matlab.
- Created a GUI for flow value visualizations and parameter configurations in C++.

Education

- **Institut Polytechnique de Paris (Feb 2019 - Apr 2023), Paris, FR** – PhD Degree in computer science
  PhD Coursework: Probabilistic Models; Machine Learning; Advanced learning (including reinforcement learning) etc.
- **CentraleSupelec (Sep 2016 - Sep 2018), Paris, FR** – Master Engineering Degree in automated system engineering
  Graduate Coursework: System Modeling and Identification; Control of systems; Machine Learning; Hyperparameter tuning; Optimization, and sequence learning etc.
- **Wuhan University (Sep 2012 - Jun 2016), Wuhan, CN** – Bachelor Degree in automation
  Undergraduate Coursework: mathematical analysis; computer method; system controlling; electronic fundamentals and design; signal processing etc.

Other Projects

- **Real-time interactive positioning application** (December 2016 - June 2017). Application which allows friends to share their positions in real time. (MySQL, Java)
- **Smart car** (September 2015 – January 2016). Electronic car which is capable to follow a path with obstacles. (C, PCB)

Languages

- **Speaking language:** Chinese (native), English (TOEFL B2), French (TFI B2)
- **Information technology language:** Java, Python, Matlab, MySQL, C++

Additional Experience and Awards

- A French patent application (inventor: **Mingming Qiu**) in co-ownership with EDF SA and IMT submitted on 28 August 2023 [reference number: FR 2309022]: the patent is about a system to create dynamic and explicable services based on machine learning and knowledge representation

Publications

- **Mingming Qiu**, Elie Najm, Rémi Sharrock, and Bruno Traverson, "PBRE: A rule extraction method from trained neural networks designed for smart home services," in International Conference on Database and Expert Systems Applications. Springer, 2022, pp. 158–173

- **Mingming Qiu**, Elie Najm, Rémi Sharrock, and Bruno Traverson, "Reinforcement Learning Based Architectures for Dynamic Generation of Smart Home Services," accepted by 21st IEEE International Conference on Machine Learning and Applications (2022 IEEE ICMLA).

- Sibo Cheng* and **Mingming Qiu***. "Observation error covariance specification in dynamical systems for data assimilation using recurrent neural networks," in Neural Computing and Applications, 34(16): 13149–13167, 2022
  (*: equivelent contributions)

- **Mingming Qiu**, Elie Najm, Rémi Sharrock, and Bruno Traverson, "HKD-SHO: A hybrid smart home system based on knowledge-based and data-driven services" submitted to the 23rd International Conference on Intelligent Systems Design and Applications (ISDA).

- **Mingming Qiu**, Elie Najm, Rémi Sharrock, and Bruno Traverson, "Reinforcement Learning Based Architectures for the Creation of Dynamic Smart Home Services" in preparation for a journal.

- **Mingming Qiu**,Sibo Cheng, "High dimensional data assimilation using Bayesian Reinforcement Learning" in preparation for a journal.