Vuong V. Trinh

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Application Letter for the PhD position in the field of "Optimal data-driven models for optimization-based design of energy systems"

10 June 2019, Grenoble

Dear Madams/Sirs:

I am writing to apply for the PhD position in the field of "Optimal data-driven models for optimization-based design of energy systems".

Throughout my undergraduate and graduate studies at *Hanoi University of Science & Technology* and *Université Joseph Fourier de Grenoble*, I have gained technological knowledge on industrial automation and computer science as well as theoretical foundations on control, optimization and data science. These expertises were sharpen through both academic research at *GIPSA-lab* and *Dong A University*, as well as industry experience at *Yazaki Corporation* and *CEA-Grenoble*. I recently spent few months working with the start-up *Benjamin Muyl Design Sarl* to develop a software for design and simulation of sailing yachts. In this work, I was responsible for delivering quality production code, primarily using *Python* language, with standard style, unit-testing and version control. I am also familiar with database, cloud platforms, data collection and manipulation beside solid experience in scientific computing with *Matlab* and *C*.

My main research activity and also my interest is to design and analyse numerical algorithms, based on mathematical optimization and artificial intelligence, to model appropriately and resolve efficiently real-world problems. Through the doctoral studies entitled *Multi-Agent Reinforcement Learning with Big Data for Supply Chain Optimization*, I hope to integrate my research expertise with my computer science and data science skills into supply chain domain. For me, supply chain management is one of the most fascinating research topic, where most of its challenges, such as inventory management or production planning, are complex discrete mathematical problems. With ever-increasing manufacturing sizes and data, a distributed paradigm with multi-agent reinforcement learning and big data is suitable for such large-scale problems. I believe this is relevant with my past research experience related to model predictive control, anomaly detection and hierarchical distributed coordination algorithms as listed in my résumé. Through this doctoral studies, I expect to broaden my knowledge, then advance the current research. In addition, I hope to not only disseminate as much as possible publications but also deliver useful software targeting industrial enterprises and academic researchers.

When applying to your project, I commit with my highest passion and effort to devote for the proposed research. I would really appreciate for your serious consideration.

Sincerely yours,

Vuong V. Trinh

Enclosure: two-page résumé, engineer's and master's degree with transcripts, IELTS certificate, two reference letters.