

# Associate Professor LU, XIAOPING

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## Academic Qualification

Ph.D. in Computer Technology and Application, M.U.S.T

M.S. in Computational Mathematics, F.D.U

B.S. in Information & Computing Sciences, F.D.U

## Teaching Area

Open Source Tool for Data Science (with support from @DataCamp)

Advanced Topics in Applied Mathematics (Inverse Problem)

Data Science (for Bachelor)

## Research Area

Machine Learning and its applications (Deep Learning, Reinforcement Learning)

Data Science; High Performance Computing; Inverse Problem

## Working Experience

2007 -- Present M.U.S.T.

2018: Scholar Visitor in UCLA, USA

2011: Short-Term Visiting in Tampere University of Technology, Finland

## Academic Publication (selected)

Huang Yulin, Zhou Chujin, Cui Kai, Lu Xiao-Ping\*. A Multi-agent reinforcement learning framework for optimizing financial trading strategies based on TimesNet. *Expert Systems With Applications* . 121502, 2023.

Huang Yulin, Lu Xiao-Ping\*, Zhou Chujin, Song Yunlin. DADE-DQN: Dual Action and Dual Environment Deep Q-Network for Enhancing Stock Trading Strategy. *Mathematics* . 11(17):3626, 2023.

Zhang Yongxiong, Zheng Hua, Lu Xiao-Ping\*, Vong Seakweng. Modulus-based synchronous multisplitting iteration methods without auxiliary variable for solving vertical linear complementarity problems. *Applied Mathematics and Computation* . Vol. 458, P. 128248, 2023.

Zhang Yongxiong, Zheng Hua, Vong Seakweng, Lu Xiao-Ping\*. Two-step parallel iteration method for large sparse horizontal linear complementarity problems. *Applied Mathematics and Computation* . Vol.438, P.127609, 2023.

Zhang Yongxiong, Lu, Xiao-Ping\*, Guo Tan, Li Xinran. Fast asteroidal period inversion by parallel acceleration-based three-step reduced voting. *Advances in Space Research* . Vol.71, No.8, P.3479, 2023.

Guo Tan, Lu Xiao-Ping\*, Yu Keping, Zhang Yong-Xiong, Wei Wei. Integration of Light Curve Brightness Information and Layered Discriminative Constrained Energy Minimization for Automatic Binary Asteroid Detection. *IEEE Transactions on Aerospace and Electronic Systems* . Vol.58, No.6, P.4984, 2022.

Guo Tan, Lu, Xiao-Ping\*, Zhang Yongxiong, Yu Keping. Neighboring Discriminant Component Analysis for Asteroid Spectrum Classification. *Remote Sensing* . Vol.13, P3306, 2021.

Hui-Jie Han, Xiao-Ping Lu\*, Ya-Zhou Yang, Hao Zhang and Admire Muchimamui Mutelo. Study of the Modified Gaussian Model on olivine diagnostic spectral features and its applications in space weathering experiments. *Research in Astronomy and Astrophysics* . Vol. 21, No.5, 2021.

Hui-Jie Han, Xiao-Ping Lu\*, Te Jiang, Chih-Hao Hsia, Ya-Zhou Yang, Peng-Fei Zhang, Hao Zhang. Spectral deconvolution analysis on Olivine-Orthopyroxene mixtures with simulated space weathering modifications. *Research in Astronomy and Astrophysics* . Vol. 20, No. 8, P.129, 2020.

Xiao-Ping Lu, David Jewitt. Dependence of Light Curves on Phase Angle and Asteroid Shape. *The Astronomical Journal* . 158:220, 2019.

A. Cellino, D. Hestroffer, Xiao-Ping Lu, K. Muinonen, P. Tanga. Inversion of HIPPARCOS and Gaia photometric data for asteroids - Asteroid rotational properties from sparse photometric data. *Astronomy & Astrophysics* . Vol.631, A67, 2019.

Lu Xiaoping, Huang XiangJie, Ip WingHuen, Hsia ChiHao. Lebedev acceleration and comparison of different photometric models in the inversion of lightcurves for asteroids. *Planetary and Space Science* . Vol. 153, P1-10, 2018.

Huang Xiang-Jie, Lu Xiaoping\*, Li Jian-Yang, Mei Bao, Hsia Chih-Hao and Zhao Hai-Bin. Scattering Law Analysis Based on Hapke and Lommel-Seeliger Models for Asteroidal Taxonomy. *Research in Astronomy and Astrophysics* . Vol. 17, No.10, 106, 2017.

Li JianYang, M. Kelley, N. Samarasinha, D. Farnocchia, M. Mutchler, Y. Ren, Lu Xiaoping, D. Tholen, T. Lister, M. Micheli. The unusual apparition of Comet 252P/2000 G1(LINEAR) and comparison with Comet P/2016 BA14(PanSTARRS). *The Astronomical Journal* . 154:136(16pp), 2017.

Lu Xiaoping, Ip WingHuen, Huang XiangJie, Zhao HaiBin. Analysis for Cellinoid shape model in inverse process from lightcurves. *Planetary and Space Science* . Vol. 135, P74-85, 2017.

Lu Xiaoping, Cellino Alberto, Hestroffer Daniel, Ip WingHuen. Cellinoid Shape model for Hipparcos Data, *Icarus* . Vol. 267, P24-33, 2016.

Lu Xiaoping, Ip WingHuen. Cellinoid Shape model for multiple light curves. *Planetary and Space Science* . Vol. 108, P31-40,2015.

Lu Xiaoping, Zhao Haibin, You Zhong. 'Cellinoid' Shape Model for Asteroids. *Earth, Moon and Planets* .Vol. 112, No. 4, P73-87, 2014.

Lu Xiaoping, Zhao Haibin, You Zhong. A Fast Ellipsoid Model for Asteroids Inverted From Lightcurves. *Research in Astronomy and Astrophysics* . Vol.13, NO. 4, P465-472, 2013.

Lu Xiaoping, Zhao Haibin, You Zhong. Observation Plan for Refining Shape Model. *Earth, Moon and Planets* . Vol.110, No. 1, P81-89, 2013.

M. Kaasalainen, Lu Xiaoping, A. Vontinen. Optimal Computation of Brightness Integrals Parametrized on the Unit Sphere. *Astronomy & Astrophysics* . Vol.539, A96, 2012.

## Research Projects

2011.01 -- 2013.12 Astronomical Observations and Space Exploration of Solar system small bodies (FDCT)

2014.10 -- 2017.10 Observation and Research of Asteroidal Lightcurves with Large Scale Sampling (FDCT)

2016.01 -- 2017.12 Scattering Characteristic Research for Asteroids (CAS)

2017.11 -- 2020.12 The Origins of Asteroids of Different Orbital and Taxonomic Types and Their Space Exploration(FDCT)

2018.12 -- 2020.06 Improvement of calculating photometric brightness based on Cellinoid shape model for asteroids(FDCT)

2019.09 -- 2022.09 Identify and classify binary asteroids by machine learning(FDCT)

2021.09 -- 2022.08 Smart Garden Expert Decision System(FDCT-Industry-University-Research Collaboration)

2023.01 -- 2024.12 Deep Learning based Super-Resolution Enhancement for Planetary Remote Sensing Images(FDCT)