XIANJIN YANG

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CURRENT POSITION

California Institute of Technology *Sep. 2022–Present*

PostDoc Researcher

- Supervisor: Houman Owhadi and Andrew M. Stuart
- Research interests: Mean-Field Games, Partial Differential Equations, Numerical algorithms, Optimization, Gaussian Processes

PREVIOUS POSITION

Tsinghua University & Beijing Institute of Mathematical Sciences and Applications *Sep. 2020–Jul. 2022*

PostDoc Researcher

- Supervisor: Shiu-Yuen Cheng, Lingyun Qiu

Research interests: Mean-Field Games, Partial Differential Equations, Numerical algorithms, Optimization

EDUCATION

King Abdullah University of Science and Technology, *Saudi Arabia* *Jul. 2016–Dec. 2020*

Ph.D. of Applied Mathematics

- Supervisor: Diogo A. Gomes
- Research interests: Mean-Field Games, Partial Differential Equations, Numerical algorithms, Optimization

King Abdullah University of Science and Technology, *Saudi Arabia* *Sep. 2014–Jun. 2016*

- *Master of Applied Mathematics*, ***2016***
- Supervisor: Diogo A. Gomes

Zhejiang University, *Hangzhou* *Sep. 2011–Jun.2014*

- *Master of Science in Computer Science*
- Supervisors: Hujun Bao and Rui wang
- Research Focus: Computer Graphics, Rendering

Chongqing University, *Chongqing* *Sep. 2007-Jul. 2011*

- *Bachelor of Software Engineering*
- Recommended for Zhejiang University without the *National Postgraduate Admission Examination*

PUBLICATIONS

R. Meng, **X. Yang**. Sparse Gaussian processes for solving nonlinear PDEs. arXiv:2205.03760, 2022.

C. Mou, **X. Yang**, C. Zhou. Numerical methods for Mean field Games based on Gaussian Processes and Fourier Features. Journal of Computational Physics, 2022.

R. Ferreira, D. Gomes, **X. Yang**. Two-scale homogenization of a stationary mean-field game. ESAIM: Control Optimisation and Calculus of Variations, 2020.

D. A. Gomes, **X. Yang**. Hessian Riemannian flows and Newton's method for Effective Hamiltonians and Mather measures. ESAIM: Mathematical Modelling and Numerical Analysis, 2020.

X Yang, E Debonneuil, A Zhavoronkov, B. Mishra. Cancer megafunds with in silico and in vitro validation: Accelerating Cancer Drug Discovery via Financial Engineering without Financial Crisis. Oncotarget, 2016.

N. Almayouf, E. Bachini, A. Chapouto, R. Ferreira, D. Gomes, D. Jordão, D. E. Junior, A. Karagulyan, J. Monasterio, L. Nurbekyan, G. Pagliar, M. Piccirilli, S. Pratapsi, M. Prazeres, J. Reis, A. Rodrigues, O. Romero, M. Sargsyan, T. Seneci, C. Song, K. Terai, R. Tomisaki, H. Velasco-Perez, V. Voskanyan, **X. Yang**. Existence of positive solutions for an approximation of stationary mean-field games. Involve, a Journal of Mathematics, 2016.

R. Wang, **X. Yang**, Y. Yuan, W. Chen, K. Bala, H. Bao, Automatic shader simplification using surface signal approximation. ACM Transactions on Graphics, Proceedings of ACM SIGGRAPH ASIA, 2014.

INVITED TALKS

Numerical methods for Mean field Games based on Gaussian Processes and Fourier Features *Jan. 2022*
Conference: DKU- NUSRI Joint Workshop on Pure and Applied Mathematics 2022

Hessian Riemannian flows and Newton's method for Effective Hamiltonians and Mather measures *Jun. 2020*
Conference: Two-Days online workshop on MFG

Two-scale homogenization of a stationary mean-field game *Jul. 2019*
Conference: 32nd Brazilian Math. Colloquium
Place: IMPA, Rio, Brazil

Hessian Riemannian flows and Newton's method for Effective Hamiltonians and Mather measures *Mar. 2019*
Place: The University of Limoges, France

Hessian Riemannian flows and Newton's method for Effective Hamiltonians and Mather measures *May. 2018*
Place: The University of Padova, Italy

TALKS

Two-scale homogenization of a stationary mean-field game *Sep. 2019*
Conference: Mean-field games and related topics-5
Place: Levico, Terme, Italy

Hessian Riemannian flows and Newton's method for Effective Hamiltonians and Mather measures *Jun. 2018*
Poster session
Graduate Summer School: Mean Field Games and Applications
Place: Institute for pure and applied mathematics, UCLA, Los Angeles, California

TEACHING EXPERIENCE

Teaching Assistant of Functional Analysis, *KAUST* *Sep. 2017–Dec. 2017*
Instructor: Diogo A. Gomes

Teaching Assistant of Numerical Analysis of Partial Differential Equations, *KAUST* *Feb. 2016–May. 2016*
Instructor: Matteo Parsani

Teaching Assistant of Numerical Linear Algebra, *KAUST* *Sep. 2015–Dec. 2015*
Instructor: David Ketcheson

EVENTS

Two-Days online workshop on MFG *Jun. 18, 2020–Jun. 19, 2020*

Mean-field games and related topics-5 *Sep. 9, 2019–Sep. 13, 2019*
Place: Levico, Terme, Italy

Applied Mathematics Summer School *Aug. 25, 2019–Sep. 8, 2019*
Place: Saudi Arabia

32nd Brazilian Math. Colloquium *Jul. 28, 2019–Aug. 2, 2019*
Place: IMPA, Rio, Brazil

International congress on industrial and applied mathematics *Jul. 15, 2019–Jul. 19, 2019*
Place: Valencia, Spain

University of Padova *Jun. 16, 2019–Jul. 5, 2019*
Activity: Visit Professor Martino Bardi and Research on the existence of solutions to robust mean-field games
Place: Padova, Italy

The CIME summer school on "Mean-field games" *Jun. 10, 2019–Jun. 14, 2019*
Place: Cetraro, Italy

University of Limoges *Feb. 17, 2019–Mar. 16, 2019*
Activity: Visit Prof. Francisco J. Silva A. and Research on numerical algorithms for mean-field games.
Place: Limoges, France

Workshop ANR project Mean Field Games *Dec. 17, 2018–Dec. 18, 2018*
Place: Université Paris Diderot, Paris, France.

Conference on "Mean-field games and applications" *Nov. 26, 2018–Nov. 27, 2018*
Place: KAUST, Saudi Arabia.

The 12th AIMS conference *Jul. 5, 2018–Jul. 9, 2018*
Activity: Attend the conference as a finalist entry for the AIMS student paper competition
Place: Taipei, Taiwan

Graduate Summer School: Mean Field Games and Applications *Jun. 18, 2018–Jun. 29, 2018*
Place: Institute for pure and applied mathematics, UCLA, Los Angeles, California

University of Padova *May. 2018–Jun. 2018*
Activity: Visit Prof. Martino Bardi and Research on the existence of solutions to robust mean-field games
Place: Padova, Italy

The Summer Camp on Applied Differential Equations. *Aug. 23, 2015–Sep. 10, 2015*
Place: Saudi Arabia

Courant Institute of Mathematical Sciences, *New York University.* *Jul. 2015–Aug. 2015*
Activity: Visit Prof. Bud Mishra
Place: New York, USA

INTERNSHIP

QQ Sanguo group, *Tencent, Chengdu.* *Jul. 2010–Sep. 2010*

- Front-end Software Engineer

PROGRAMMING LANGUAGE

C++, Mathematica, Matlab, Java, OpenGL, DirectX, HLSL, GLSL, QT, JavaScript, SQL