Youguang Chen

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Education

Jan. 2019 - *Current*	Ph.D. in Computational Science, Engineering & Mathematics *The University of Texas at Austin* Gpa: 4.00/4.00
Aug. 2016 - Dec. 2018	M.S. in Petroleum Engineering *The University of Texas at Austin* Gpa: 4.00/4.00
Aug. 2012 - June 2016	B. Eng. in Environmental Engineering *Tsinghua University* Gpa: 91.6/100.0

Publications

2020	*KNN-DBSCAN: a DBSCAN in high dimensions* (pdf). **Youguang Chen**, William Ruys, George Biros
2020	*An efficient method for modeling flow in porous media with immersed faults* (pdf). **Youguang Chen**, George Biros
2018	*A fully three dimensional semianalytical model for shale gas reservoirs with hydraulic fractures,* Energies. Yuwei Li, Lihua Zuo, Wei Yu, **Youguang Chen**
2016	*Static formation temperature prediction based on bottom hole temperature,* Energies. Changwei Liu, Kewen Li, **Youguang Chen**, Lin Jia, Dong Ma
2016	*More general relationship between capillary pressure and resistivity data in gas-water system,* Journal of Petroleum Science and Engineering. Changwei Liu, Kewen Li, Dong Ma, **Youguang Chen**
2015	*Removal of perfluorinated carboxylates from washing wastewater of perfluorooctanesulfonyl fluoride using activated carbons and resins,* Journal of Hazardous Materials. Ziwen Du, Shubo Deng, **Youguang Chen**, Bin Wang, Jun Huang, Gang Yu

Honors and Awards

Sep. 2019	NIMS Fellowship in Oden Institute, UT Austin ($30,000)
Aug. 2018	S.P. Yates Graduate Fellowship, UT Austin ($3,500)
Aug. 2017	S.P. Yates Graduate Fellowship, UT Austin ($3,500)
Aug. 2015	Tsinghua University Academic Excellence Scholarship (10/81)
Aug. 2014	Tsinghua University Independent Research Assistantship (5/81)

Research Experience

More details can be found in here.

Feb. 2021-July 2021 — *Research Assistant*

Oden Institute, UT Austin

Topic: Representative subset selection for cold starting semi-supervised learning

Advisor: George Biros

Proposed new method to select representative samples for classification.

Empirically showed that the new method outperforms than other methods sampling methods such as random, K-means, spectral clustering, coresets and MMD.

Aug. 2019-Aug. 2020 — *Research Assistant*

Oden Institute, UT Austin

Topic: Parallel algorithms for density-based clustering

Advisor: George Biros

Proposed new algorithm to use directed k-nearest neighbor graph for density-based clustering.

Designed, implemented, and tested a hybrid MPI/OpenMP parallel algorithm.

Performed tests to assess the clustering quality and the scalability of the new scheme.

Feb. 2019-Aug. 2019 — *Research Assistant*

Oden Institute, UT Austin

Topic: Fluid simulation in porous media with immersed faults

Advisor: George Biros

Derived new PDEs as approximations and conducted convergence analysis.

Implemented the new formulations using Galerkin methods.

Tested preconditioned iterative Krylov solves of the new method.

Software

Parallel kNN-DBSCAN	A MPI/OpenMP parallel algorithm for kNN based density clustering. https://github.com/ut-padas/knndbscan

Skills

Programming Languages	C++11, C, Python, Matlab, Fortran
Tools	TensorFlow, OpenMP, MPI, cmake, git, LaTeX, Gmsh, FEniCS
Operating Systems	Linux, MacOS, Windows

Relevant Graduate Level Courses

Methods of Applied Mathematics	Differential Equations
Functional Analysis	Linear Algebra
Probability and Stochastic Processes	Parallel Algorithms in Scientific Computing
Convex Optimization	Mathematical Modeling in Science and Engineering
Machine Learning and Data Sciences	