

Youguang CHEN

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EDUCATION

2019 – Present	Ph.D. student in COMPUTATIONAL SCIENCE, ENGINEERING & MATHEMATICS <i>The University of Texas at Austin</i> GPA: 4.00/4.00
2016 – 2019	M.S. in PETROLEUM ENGINEERING <i>The University of Texas at Austin</i> GPA: 4.00/4.00
2012 – 2016	B. Eng. in ENVIRONMENTAL ENGINEERING <i>Tsinghua University</i> GPA: 91.6/100.0 Rank: 4/81

PUBLICATIONS

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

2020 – 2021
Research Assistant

Oden Institute, UT Austin

TOPIC: Representative subset selection

ADVISOR: George Biros

Proposed a method to select representative samples based on leverage score.

Tested the sampling quality on synthetic dataset and real datasets such as CIFAR-10 and CIFAR-100.

Empirically showed the good performance of the new method by comparing with other methods such as random, K-means, spectral clustering, coresets and MMD.

2019 – 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.

2019 – 2020
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 k NN-DBSCAN

A MPI/OpenMP parallel algorithm for k NN based density clustering.

<https://github.com/ut-padas/knnbdbscan>

SKILLS

Programming Languages C++11, C, PYTHON, MATLAB, FORTRAN

Tools TENSORFLOW, OPENMP, MPI, CMAKE, GIT, L^AT_EX, 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