

# Youguang CHEN

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## EDUCATION

JAN 2019 - Current	Ph.D. in COMPUTATIONAL SCIENCE, ENGINEERING & MATHEMATICS <i>The University of Texas at Austin</i> GPA: 4.00/4.00
AUG 2016 - DEC 2018	M.S. in PETROLEUM ENGINEERING <i>The University of Texas at Austin</i> GPA: 4.00/4.00
AUG 2012 - JUNE 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> ( <a href="#">pdf</a> ). <b>Youguang Chen</b> , William Ruys, George Biros
2020	<i>An efficient method for modeling flow in porous media with immersed faults</i> ( <a href="#">pdf</a> ). <b>Youguang Chen</b> , 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, <b>Youguang Chen</b>
2016	<i>Static formation temperature prediction based on bottom hole temperature</i> , Energies. Changwei Liu, Kewen Li, <b>Youguang Chen</b> , 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, <b>Youguang Chen</b>
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, <b>Youguang Chen</b> , 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

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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: 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

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Parallel  $k$ NN-DBSCAN

A MPI/OpenMP parallel algorithm for  $k$ NN based density clustering.  
<https://github.com/ut-padas/knnbdbscan>

## SKILLS

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Programming Languages

C++11, C, PYTHON, MATLAB, FORTRAN

Tools

OPENMP, MPI, CMAKE, GIT,  $\text{\LaTeX}$ , GMSH, FENICS

Operating Systems

LINUX, MACOS, WINDOWS

## RELEVANT GRADUATE LEVEL COURSES

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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