

KEHANG HAN

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Github: github.com/KEHANG

EDUCATION

Department of Chemical Engineering, MIT PhD candidate in Chemical Engineering <ul style="list-style-type: none">● Overall GPA: 4.9/5.0● Computer Science minor	Aug 2014-Dec 2017 (Anticipated Graduation)
Department of Chemical Engineering, MIT M.S. in Chemical Engineering <ul style="list-style-type: none">● Overall GPA: 4.9/5.0	Aug 2012-Jun 2014
Department of Chemical Engineering, Tsinghua University B.S. in Chemical Engineering & Industrial Biological Engineering	Sep 2008-Jul 2012

SOFTWARE, WEB & DATA EXPERIENCE

Lead Developer, Reaction Mechanism Generator (RMG, rmg.mit.edu) <i>Advisor: Prof. William H. Green</i> <ul style="list-style-type: none">● Lead developer of RMG team with 10 people at MIT and Northeastern University● Applied parallel and concurrent computing techniques, optimized memory management in RMG● Maintained cross-platform (Linux, OSX, Windows) compatibility using Anaconda● construction of Continuous Integration Test Platform for RMG● Built Molecular Convolutional Neural Network for molecular properties prediction	Jan 2013-Now
Project Lead, Amazon Product Review Summarizer (srs.mit.edu) <ul style="list-style-type: none">● Built an NLP web application (srs.mit.edu) in Python, Flask and MongoDB● Implemented four-step pipeline covering review scraping, aspect classification, sentiment scoring, front-end interaction● Particularly developed product-aspect classifiers using MaxEntropy and Word2Vec	Mar 2016-Sep 2016
Data Analyst Intern, Supply Chain Planner in Shell Oil <i>Supervisor: Marc Thomas</i> DACH (Germany, Austria, Switzerland) Supply Chain Planning Project <ul style="list-style-type: none">● Worked with Shell internal IT team to build supply chain optimization tool● Created analysis and visualization tools using R for supply chain overview	Jun 2015-Sep 2015
Developer, PRODA (PROtein Design Algorithm) <i>Advisor: Prof. Yushan Zhu</i> <ul style="list-style-type: none">● Developed a software (PRODA, PROtein Design Algorithm) for designing using C● Designed and implemented a heuristic optimization algorithm for MILP (Mixed Integer Linear Programming) which speeds up execution by 20 times for large enzyme systems	Sep 2011-July 2012

Web Chair, MIT Sidney-Pacific Dorm Website (s-p.mit.edu)

Apr 2016-Now

Sidney-Pacific website is an MIT dorm website. Residents rely on it for inventory check in and out, package notifications, real-time laundry checking, house repairing and dorm events publicizing, etc.

- Current major developer for this web application written in PHP and SQL
- Developed resident package management system
- Automated inventory check-in and check-out system

ENGINEERING CONSULTING EXPERIENCE**Engineering Consultant, Cabot Corporation, Billerica, USA**

Mar 2014-Apr 2014

- Performed a lab-scale study on new type of technology for silica surface treatment
- Demonstrated this new technology is promising by lab-scale study; results showed it's faster and more economically favorable than current technology currently used by Cabot

Engineering Consultant Lead, SGC Energia, Houston, USA

Jan 2014-Mar 2014

- Designed and constructed lab-scale equipment to study key variables involved in FT reactor
- Developed methodology for pressure drop estimation applicable to various operation conditions
- Experimentally studied heat transfer in Fischer-Tropsch reactor and applied to guiding reactor start-up

AWARDS & HONORS

- MIT Energy Initiative Fellowship in 2016
- Third Prize (3/30 teams) of MIT Energy Hackathon in 2015
- Special Prize (3/300+) in "Mitsui Chemicals Cup" National Chemical Plant Design Contest in 2011
- Honorable Mention(2nd Prize) in Mathematical Contest in Modeling, USA in 2011
- First Prize of National Undergraduate Mathematical Contest in Modeling in 2010
- First Prize of Dow Chemical Scholarship for Outstanding Academic Performance in 2010
- First Prize of Physics Contest for Beijing Undergraduate in 2009
- First Prize of China's National Olympic Chemistry Competition in 2007

PUBLICATIONS & REPORTS

- **K. Han**, W.H. Green, and R.H. West, "On-the-fly pruning for rate-based reaction mechanism generation," *Computers & Chemical Engineering*, 100, 1–8. doi:10.1016/j.compchemeng.2017.01.003
- X. Huang, **K. Han**, and Y. Zhu, "Systematic optimization model and algorithm for binding sequence selection in computational enzyme design," *Protein Sci.*, vol. 22, no. 7, pp. 929–941, 2013
- Y. Zhang, **K. Han**, D. Lu, and Z. Liu, "Reversible encapsulation of lysozyme within mPEG-b-PMAA: experimental observation and molecular dynamics simulation," *Soft Matter*, vol. 9, no. 36, pp. 8723–8729, 2013.
- Y.C. Hong, K.Q. Sun, **K. Han**, G. Liu and B.Q. Xu, "Comparison of catalytic combustion of carbon monoxide and formaldehyde over Au/ZrO₂ catalysts," *Catal.Today*, **158** (2010), p415.

PROFESSIONAL SKILLS

- Programming Language: Python, R, Java, Matlab, C/C++, PHP
- Database: SQL, mongoDB (non-SQL)
- Design Tools: Illustrator, Lightroom, Photoshop, etc.
- Other related skills: AWS website deployment, computer cluster administration