

Kehang Han

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EDUCATION	Massachusetts Institute of Technology , Cambridge, MA <i>PhD Candidate</i> <i>Advisor: William Green</i>	Aug 2012 - Dec 2017
	<ul style="list-style-type: none">• Chemical Engineering and Computer Science• Overall GPA: 4.9/5.0	
	Tsinghua University , Beijing, China <i>Bachelor of Science</i>	Sep 2008 - Jul 2012
	<ul style="list-style-type: none">• Chemical and Biological Engineering• Rank: 1/120	
SOFTWARE EXPERIENCE	Reaction Mechanism Generator (RMG, rmg.mit.edu) <i>Lead Developer</i>	Jan 2013 - Present
	<ul style="list-style-type: none">• Led a team with 10 people at MIT and Northeastern University• Applied high performance computing (memory reduction, parallelism) to RMG• Maintained cross-platform (Linux, OSX, Windows) compatibility• Constructed Continuous Integration Test Platform (RMG-tests) for RMG	
	PROtein Design Algorithm (PRODA) <i>Developer</i>	Sep 2011 - Jul 2012
	<ul style="list-style-type: none">• Development team member of PRODA, a software for designing protein using C• Designed and implemented a heuristic optimization algorithm for MILP• Achieved 20 times speed-up for large enzyme systems	
DATA & WEB EXPERIENCE	Amazon Product Review Summerizer (SRS, srs.mit.edu) <i>Lead Developer</i>	Mar 2016 - Sep 2016
	<ul style="list-style-type: none">• Led a team with 3 people at MIT• Built an NLP web application in Python, Flask and MongoDB• Designed and implemented four-step pipeline: review scraping, aspect classification, sentiment scoring and front-end interaction• Particularly developed product-aspect classifiers using MaxEntropy and Word2Vec	
	Molecule2Vec: Molecular ConvNets <i>Lead Developer</i>	May 2016 - May 2017
	<ul style="list-style-type: none">• Constructed graph convolutional neural networks for molecule/graph property prediction• Reduced prediction error by a factor of 25 compared with descriptor-based models• Integrated data generation, nightly-build and user base for continuous learning	

Supply Chain Planner in Shell Oil, Hamburg, Germany
Data Science Intern
Supervisor: Marc Thomas

Jun 2015 - Sep 2015

- Participated in building supply chain optimization tool
- Created analysis and visualization tools using R for scenario study

MIT Sidney-Pacific Website (s-p.mit.edu)

Web Chair

Apr 2016 - Present

Sidney-Pacific website is an MIT dorm website that has integrated many residential services, which include automatic campus shuttle tracking, smart laundry reminder, inventory management and analysis system, real-time package notifications, house repairing and dorm events publicizing, etc.

- Major developer for the website written in PHP and SQL
- Developed resident package management system
- Automated inventory check-in-out, usage analysis and reporting system

ENGINEERING CONSULTING **SGE Energia**, Houston, TX
Engineering Consultant Lead

Jan 2014 - Mar 2014

- Led a team with 3 MIT engineering consultants
- Designed and constructed lab-scale Fischer-Tropsch (FT) reactor
- Developed methodology for pressure drop estimation at various operation conditions
- Studied heat transfer in FT reactor and applied it to guiding reactor start-up

**AWARDS
HONORS**

Energy Analytics

- MIT Energy Initiative (MITEI) Fellowship in 2016
- 3rd Prize (3/30 teams) of MIT Energy Hackathon in 2015
- 3rd/300+ in Mitsui Chemicals Cup Process Design Contest in 2011

Mathematics

- 2nd Prize in American Mathematical Contest in Modeling in 2011
- 1st Prize in Chinese National Mathematical Contest in Modeling in 2010

Physics & Chemistry

- 1st Prize in Beijing Physics Contest in 2009
- 1st Prize in Chinese National Olympic Chemistry Competition in 2007

**SELECTED
PUBLICATIONS**

- **K. Han**, W.H. Green, and R.H. West, *On-the-fly pruning for rate-based reaction mechanism generation*, Computers & Chemical Engineering
- X. Huang, **K. Han**, and Y. Zhu, *Systematic optimization model and algorithm for binding sequence selection in computational enzyme design*, Protein Science
- 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

SKILLS

Languages: Python, C/C++, Java, R, Matlab, PHP
Database: SQL, mongoDB
Design: Illustrator, Lightroom, Photoshop
Others: AWS, server admin