

David Qiu

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objective

Integrating modern web technologies into chemistry and cheminformatics.

education

University of Illinois at Urbana-Champaign

May 2020

B.S. in Chemistry with Highest Distinction; James Scholar, Dean's List, Cum Laude (GPA: 3.92)

Relevant Coursework

- Phys. Chem. I-II; Inorg. Chem.; Org. Chem. I-II; Instrumental Char.; Quant. Anal.
- Lin. Alg.; Diff. Eq.; Calc. I-III; Univ. C. Mech., E+M, Q. Mech.; Num. Anal.

duPont Manual High School

May 2018

Valedictorian, National Merit Finalist. SAT 1570/1600, ACT 35/36.

- Placed 2nd in Undergraduate Neuroscience Convention at the University of Louisville.

Apr. 2016

research + employment

Founder of Senpie LLC

Jul. 2020 – *

- Founded a cheminformatics software startup currently developing ChemStruct™, a modern 2-D molecular editor allowing both students and professional scientists to draw, share, and edit graphical depictions of molecules.

Researcher and TA, University of Illinois at U-C

Nov. 2018 – *

- **Hirata Group, 2019–***: Furthered development of a novel stochastic technique in the evaluation of higher-order perturbation energies for very large molecular systems, termed *Monte Carlo perturbation theory*.
 - Performed extensive re-factoring of the existing C++ implementation of the algorithm.
 - Implemented various numerical techniques including quadrature rules, the control variates method, and the explicit RK4 method via the NumPy Python library.
 - Parsed, processed, and interpreted large numerical datasets via the NumPy and pandas Python libraries.
 - Metaprogrammed scripts that automatically wrote and queued other job scripts to be run on the Blue Waters supercomputer at the NCSA.
- **TA for Phys. Chem. I, Spr. 2020**: Taught an introductory course in quantum mechanics to 60+ junior/senior-level undergraduates with my advisor Professor Hirata.
- **Jain Group, 2018–2019**: Performed electronic impedance spectroscopy to characterize the superionic properties of twin-domain Cu₂S nanocrystals, a potential solid-state electrolyte for next-generation lithium-ion batteries.

Medical Scribe, OSF Heart of Mary Medical Center ED

May. 2019 – Jun. 2020

- Documented medical charts for ED physicians using the Epic EMR system. Embraced learning the fundamentals of medicine in a stressful, hectic environment while building relationships with numerous ED physicians.

involvement and honors

- 2020 ACS Undergraduate Award in Physical Chemistry, Worth H. Rodebush Award May 2020
- Academic Chair of American Chemical Society, UIUC Chapter. May 2019 – May 2020
- Oliver J. Bell Merit Scholar, Homer J. and Edith M. Birch Scholar. Aug. 2019
- 2019 John E. Gieseking Scholar (for undergraduate research). May 2019
- Named ACS High Honors (Top 50 in the U.S. Chemistry Olympiad). May 2018

selected publications

- Qiu, David. *Investigations into Molecular Dimers via Many-body Monte Carlo Methods*. Undergraduate thesis. 2020.
- Doran, Alexander; Qiu, David; Hirata, So. *Evaluation of Non-Covalent Interaction Energies by Stochastic MBPT*. To be published. 2020.

Note: * denotes present or expected in the near future.