

BRIAN D. NGUYEN

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OBJECTIVE

8+ years experience in computational and theoretical chemistry research and education. Seeking a senior research and development position in molecular modeling to develop new materials.

EDUCATION

University of California, Irvine

Sept 2016 - expected May 2022

Ph.D. in Chemistry

with concentration in Chemical and Materials Physics

University of California, Irvine

Sept 2011 - Mar 2015

B.S. Chemistry, cum laude

B.S. Biology, cum laude

RESEARCH EXPERIENCE

Graduate Researcher, Chemistry

Sept 2016 - present

University of California, Irvine

Advisor: Filipp Furche

- Developed theories and models to predict the behavior of noncovalent interactions (NI)
- Initiated collaboration with the Vanderwal Lab at UCI leveraging knowledge in NIs to improve the efficacy of cancer drugs; publication *in prep*
- Collaborated with the Long Group at UC Berkeley and developed model to understand the electronic structure of dilanthanide single molecule magnets; published in *J. Am. Chem. Soc.*
- Provided weekly one-on-one research mentorship for 4 undergraduates and 4 high school students
- 1 undergraduate pursued Chemical Engineering Ph.D. program at Columbia University and 4 high school students pursued biology, earth system science, and chemistry majors at UCI and UCSB

Undergraduate Researcher, Mathematics

Jun 2016 - Sept 2016

University of California, Irvine

Advisor: Frederic Y. Wan

- 1 of 20 students accepted into the Mathematical and Computational Biology for Undergraduate summer program
- Collaborated with mathematician to develop a mathematical model that predicted the early development of fruit flies matching experimental studies

Undergraduate Researcher, Biology

Mar 2014 - Jun 2016

University of California, Irvine

Advisor: Thomas L. Poulos

- Simulated and predicted the mechanism of *Leishmania major* peroxidase through molecular dynamics (MD) simulations; results supported experiments and published in *J. Chem. Info. Model.*
- Predicted the dominant protein conformation of cytochrome P450 through MD simulations matching experiments; published in *PNAS*

Undergraduate Researcher, Chemistry

Oct 2013 - Jun 2016

University of California, Irvine

Advisor: Filipp Furche

- Collaborated with Prescher Lab to produce luciferin derivatives that emit $\sim 2\times$ stronger signal for bioluminescence; published in *ChemBioChem*
- Developed up to $\sim 4\times$ faster algorithm for molecular property calculations and coded within the TURBOMOLE quantum package; published in *J. Chem. Phys.*

WORK EXPERIENCE

University of California, Irvine - Irvine, CA

Jan 2019 – Mar 2019

Graduate Chemistry Teacher Assistant

- Taught for two graduate level chemistry courses: Chem 254 - Computational Chemistry and Chem 232B - Quantum Mechanics
- Led discussion and lab sections for over 40 students

Undergraduate Chemistry Teacher Assistant

- Taught for general chemistry lecture and lab courses (Chem M2LA/H2LA, Chem 1B, and Chem 1C)
- Led discussion and lab sections for over 200 students

Morpho Detection, LLC - Santa Ana, CA

Dec 2015 - Jun 2016

Chemist Intern

- Tested the accuracy of mass spectrometry device for bomb detection and communicated with senior scientists on the development of the devices
- Calibrated and tested the bomb detection accuracy of the devices for government certification

SELECTED PUBLICATIONS

*Selected publications from 8 published, 1 under review and 2 in preparation; * Indicates that authors contributed equally*

1. **Nguyen, B.D.***; Hernandez, D.J.*; Flores, E.; Furche, F. Dispersion Size-Consistency. *Under Review*. **2021**.
2. *Editor's Pick* - **Nguyen, B.D.***; Yu, J.M.*; Tsai, J.; Furche, F. Selfconsistent Random Phase Approximation Methods. *J. Chem. Phys.* **2021**, 155(4), 040902.
3. **Nguyen, B.D.**; Chen, G.P.; Agee, M.M.; Burow, A.M.; Tang, M.P.; Furche, F. Divergence of Many-Body Perturbation Theory for Noncovalent Interactions of Large Molecules. *J. Chem. Theory Comput.* **2020**, 16(4), 2258–2273.
4. **Nguyen, B.D.***; Hollingsworth, S.A.*; Chreifi, G.; Arce, A.P.; Poulos, T.L. Insights into the Dynamics and Dissociation Mechanism of a Protein Redox Complex Using Molecular Dynamics. *J. Chem. Info. Model.* **2017**, 57(9), 2344–2350.

SELECTED PRESENTATIONS

Selected presentations from 6 conferences

1. **2022 Spring ACS National Meeting & Expo**, San Francisco, CA - *accepted* Oral.
Nguyen, B.D.; Hernandez, D.J.; Flores, E.V.; Furche, F. Dispersion Size Consistency, March **2022**.
2. **2020 Fall ACS National Meeting & Expo**, San Francisco, CA - Poster.
Nguyen, B.D.; Chen, G.P.; Agee, M.M.; Burow, A.M.; Tang, M.P.; Furche, F. Divergence of Many-Body Perturbation Theory, April **2020**.
3. **2019 Southern California Theoretical Chemistry Symposium**, Los Angeles, CA - Poster.
Nguyen, B.D.; Chen, G.P.; Agee, M.M.; Burow, A.M.; Furche, F. Size dependence of noncovalent interactions within RPA, May **2019**.

SELECTED EXTRACURRICULARS

Furche High School Outreach Program - Irvine, CA

Sept 2016 - present

Program Coordinator

- Led the outreach program to provide research opportunities for underserved communities throughout the United States; created a community with 18 high school students and 10 graduate mentors
- Volunteered 5000+ hours and co-authored research grants to support the program

Orange County Regional Science Olympiad - Irvine, CA

Sept 2016 - Feb 2020

Proctor and Test Writer

- Created and standardized 8 experimental design exams for middle and high school students in 2017, 2018, 2019, and 2020 OC Regional Science Olympiad at UCI
- Mentored and taught an undergraduate to design and proctor the experimental design exam

SELECTED AWARDS AND HONORS

UCI School of Physical Sciences Faculty Endowed Fellowship

Jun 2021

UCI Chancellor's Undergraduate Award of Distinction

Jun 2015

Phi Beta Kappa

May 2015

Phi Lambda Upsilon

May 2015

Hypercube Scholar Award

Jun 2014

OC American Chemical Society Undergraduate Award

Apr 2014

PROGRAMMING SKILLS

- C++
- Python
- MATLAB
- R
- Fortran
- Bash