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 and biomolecules.

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
- Initiated cancer drug collaboration with the Vanderwal Lab at UCI and developed model of the $\sim$200,000 atoms protein-drug complex leading to potential drug candidates; 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$2x stronger signal for bioluminescence; published in *ChemBioChem*
- Developed up to $\sim$4x 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

University of California, Irvine - Irvine, CA *Sept 2016 – Jun 2017*
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. *Accepted.* **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