Marc Ong

www.marcong.org

WORK AND RESEARCH EXPERIENCE

Engineer, Preferred Networks Dec 2019—present

- Implements graph neural network algorithms for chemical property prediction
- Employs machine learning and molecular dynamics to explore transport phenomena in materials
- Devises solutions for generation and augmentation of training data

Research Assistant, Computational Materials Lab, CSULA Aug 2017—May 2019

- Conducts *ab initio* simulations to assess novel materials for solar energy and catalysis
- Applies genetic algorithms to predict crystal structures of materials
- Utilizes density functional theory and machine learning for prediction of material properties
- Organizes and instructs workshops for programming and machine learning

Intern, National Institute for Materials Science (Japan) May 2017—Aug 2017

- Conducted experiments on charge transport in perovskite solar cells
- Analyzed experimental data to understand degradation processes
- Created scripts for model fitting of solar cell impedance measurements

Research Assistant, Photovoltaics Lab, CSULA May 2016—May 2017

- Conducted experiments to build and characterize materials for perovskite photovoltaics
- Performed general laboratory techniques for the assembly of solar cells
- Performed measurements of photovoltaic efficiency and charge transport

SKILLS

Computer Software and Programming Languages

- Python (numpy, pandas, scikit-learn) for scientific computing and data analysis
- PyTorch for implementing and developing deep learning algorithms
- Docker for ensuring reproducible model training on Kubernetes clusters
- GNU/Linux systems and shell scripting with bash + GNU coreutils
- VASP and WIEN2k for first-principles density functional theory calculations

Research and Collaborative Abilities

- Technical communication (conference presentations, instructing programming workshops)
- Interdisciplinary collaboration with team members and other research groups
- Project management for scientific research
- Technical writing for journal publications

EDUCATION

California State University, Los Angeles (CSULA) Sep 2014—May 2019

- Bachelor of Science in Physics, Minor in Mathematics (summa cum laude)
- Coursework: Probability (graduate), Modeling Biological Systems, Scientific Computing

ARTICLES

Journal Articles (peer-reviewed)

- M. Ong, D. Guzman, Q. Campbell, I. Dabo, and R. A. Jishi, $BaZrSe_3$: *Ab initio* study of anion substitution for bandgap tuning in a chalcogenide material. *J. Appl. Phys.* **125**, 235702 (2019). Recipient of Editor's Pick award.
- M. Ong, Q. Campbell, I. Dabo, and R. A. Jishi, First-principles investigation of $BiVO_3$ for thermochemical water splitting. *Int. J. Hydrog. Energy.* **44**, 1425–1430 (2019).
- M. Ong, M. Hammouri, and R. A. Jishi, Ab-initio study of optoelectronic and magnetic properties of ternary chromium chalcogenides. *Adv. Mater. Sci. Eng.* **2018**, 3762451 (2018).

Conference Abstracts

- M. Ong, Q. Liu, A. Lopez, X. Wang, D. Jiang, and F. Zhou, Impact of monolayer of alkyl amine on the crystalline orientation and performance of $CH_3NH_3PbI_3$ solar cells. *Abstr. Pap. Am. Chem. Soc.* **253** (2017).

FELLOWSHIPS

Undergraduate Student Fellowship, National Science Foundation (USA)

Funded by the Partnership for Research and Education in Materials

AWARDS

Summa Cum Laude upon graduation
Dean's List (2015—2019)
Nomination by Golden Key Honor Society
Nomination by National Society of Leadership and Success
Nomination by Phi Kappa Phi Honor Society

MISCELLANEOUS

Event Coordinator, American Red Cross, CSULA Sep 2016—present

- Organizes CPR training and events to raise awareness for disaster preparedness among university students