# Marc Ong

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## WORK AND RESEARCH EXPERIENCE

**Engineer, Preferred Networks** Dec 2019—present

- Implements graph neural network algorithms for chemical property prediction
- Implements APIs for interfacing with chemical machine learning systems
- Employs machine learning and molecular dynamics to explore transport phenomena in materials

**Computational Materials Lab, CSULA** Aug 2017—May 2019

- Conducted *ab initio* simulations to assess novel materials for solar energy and catalysis
- Applied genetic algorithms to predict crystal structures of materials
- Utilized density functional theory and machine learning for prediction of material properties
- Organized and instructed 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

**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 deep learning and neural networks
- Containers with Docker and deployment to Kubernetes
- Git and GitHub for version control and collaboration
- GNU/Linux systems and shell scripting with bash + GNU coreutils
- Experience with SQL and relational databases
- Certified, Deep Learning Specialization (Andrew Ng, Coursera)

**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

**Languages**

- English (native)
- Japanese (proficient)

## EDUCATION

**Georgia Institute of Technology (GATech)** January 2020—present

· Master of Science in Computer Science (online program, part-time)

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

· Bachelor of Science in Physics, Minor in Mathematics
· Summa Cum Laude, Phi Kappa Phi Honor Society nomination

## 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

## MISCELLANEOUS

**Event Coordinator, American Red Cross, CSULA** Sep 2016—May 2019

· Organized CPR training and events to raise awareness for disaster preparedness among university students