MARC ONG

www.marcong.org
US citizen ◇ Authorized to work in Japan

WORK EXPERIENCE

Engineer, Preferred Networks (Japan) Dec 2019—present

- Implementation of APIs for inference with Matlantis (neural network as a service)
- Manages deployment of Matlantis packages
- Creation and maintenance of end-to-end tests of Matlantis web interface
- 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 EXPERIENCE

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

PUBLICATIONS

Journal Articles (peer-reviewed)

- S. Takamoto, C. Shinagawa, D. Motoki, K. Nakago, W. Li, I. Kurata, T. Watanabe, Y. Yayama, H. Iriguchi, Y. Asano, T. Onodera, T. Ishii, T. Kudo, H. Ono, R. Sawada, R. Ishitani, M. Ong, T. Yamaguchi, T. Kataoka, A. Hayashi, N. Charoenphakdee and T. Ibuka, Towards universal neural network potential for material discovery applicable to arbitrary combination of 45 elements. *Nat. Commun.* **13**, 2991 (2022). Featured in Editors' Highlights.
- 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).

SKILLS

Computer Software and Programming Languages

- Python (numpy, pandas, scikit-learn) for scientific computing and data analysis
- Deep learning development and deployment (PyTorch, TensorFlow, ONNX, etc.)
- Container creation and orchestration (Docker, Kubernetes)
- Cloud platform management (GCP, AWS, Azure)
- Git and GitHub for version control and collaboration
- General GNU/Linux systems and shell scripting

Research and Collaborative Abilities

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

Languages

- English (native)
- Japanese (JLPT N1, Jul 2022)
- Chinese (HSK5 261/300, Apr 2023)

EDUCATION

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

Bachelor of Science in Physics (Specialization in Biophysics), Minor in Mathematics
Department of Physics and Astronomy, College of Natural and Social Sciences
Summa Cum Laude, Phi Kappa Phi Honor Society nomination

FELLOWSHIPS

Undergraduate Student Fellowship, National Science Foundation (USA)

Funded by the Partnership for Research and Education in Materials