

Milan Cvitkovic

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EXPERIENCE

INDEPENDENT RESEARCHER

May 2021 - Present

- Research into noninvasive neuromodulation technologies

SENIOR MACHINE LEARNING RESEARCHER | POSTERA

Apr 2020 - May 2021 | Remote

- Built MVP of PostEra's core ML-driven retrosynthesis technology (Python, PyTorch)
- Co-developed initial launch of Manifold: a retrosynthesis and search tool for medicinal chemists (React, Django, Rust)
- Developed machine learning models for generative chemistry and ADME prediction for various clients

APPLIED SCIENTIST | AMAZON WEB SERVICES

Oct 2017 - Mar 2020 | Pasadena, CA

- Developed first GNN model for supervised learning on relational databases for Amazon Autopilot
- Built computer vision benchmark platform for Rekognition Custom Labels and Amazon Textract
- Designed deep learning models for performing tasks on computer source code, used by Amazon Code Guru

SOFTWARE ENGINEER / DATA SCIENTIST | FENIX INTERNATIONAL (NOW ENGIE ENERGY ACCESS)

Sep 2014 - Sep 2015 | Kampala, UG

- Fenix makes microsolar home power products for off-grid East Africans
- Built and maintained web apps for CRM, analytics, and inventory management (Django)
- Trained machine learning models to predict customer default risk, repayment rate, and portfolio health (scikit-learn)

FULBRIGHT SCHOLAR | NATIONAL UNIVERSITY OF SINGAPORE \ U.S. DEPARTMENT OF STATE

Aug 2013 - Jun 2014 | Singapore

- Developed algorithms for efficient, ab-initio simulation of the molecular behavior of water (Gaussian, Fortran)

EDUCATION

DOCTOR OF PHILOSOPHY, COMPUTING AND MATHEMATICAL SCIENCES | CALTECH

Sep 2015 - Mar 2020 | Pasadena, CA

- Dissertation: Deep Learning in Unconventional Domains
- Assistant teaching: Machine Learning and Data Mining, Computer Algorithms, Hack Society (data science project course)
- Other Coursework: Neural Computation, Quantum Computation, Stochastic Processes and Modeling

BACHELOR OF ARTS | CARLETON COLLEGE

2009-2013 | Northfield, MN

- Majors: Mathematics and Chemistry, *summa cum laude*

PUBLICATIONS

- TabTransformer: Tabular Data Modeling Using Contextual Embeddings; *Xin Huang, Ashish Khetan, Milan Cvitkovic, Zohar Karnin*; 2020
- COVID Moonshot: Open Science Discovery of SARS-CoV-2 Main Protease Inhibitors by Combining Crowdsourcing, High-Throughput Experiments, Computational Simulations, and Machine Learning; *Achdout et al.*; 2020
- Supervised Learning on Relational Databases with Graph Neural Networks; *Milan Cvitkovic*; Representation Learning on Graphs and Manifolds workshop at International Conference on Learning Representations, 2020
- Sampling-Free Learning of Bayesian Quantized Neural Networks; *Jiahao Su, Milan Cvitkovic, Furong Huang*; International Conference on Learning Representations, 2020
- SLM Lab: A Comprehensive Benchmark and Modular Software Framework for Reproducible Deep Reinforcement Learning; *Keng Wah Loon, Laura Graesser, Milan Cvitkovic*; 2019
- Minimal Achievable Sufficient Statistic Learning; *Milan Cvitkovic, Günther Koliander*; International Conference on Machine Learning, 2019
- Some Requests for Machine Learning Research from the East African Tech Scene; *Milan Cvitkovic*; Proceedings of the 2nd ACM SIGCAS Conference on Computing and Sustainable Societies, 2019

- Open Vocabulary Learning on Source Code with a Graph-Structured Cache; *Milan Cvitkovic, Badal Singh, Anima Anandkumar*; International Conference on Machine Learning, 2019
- A General Framework for Amortizing Variational Filtering; *Joseph Marino, Milan Cvitkovic, Yisong Yue*; Neural Information Processing Systems, 2018
- A Theoretical Mechanistic Study of the Asymmetric Desymmetrization of a Cyclic meso-Anhydride by a Bifunctional Quinine Sulfonamide Organocatalyst; *Katie Blise, Milan Cvitkovic, Nolly Gibbs, Sean Roberts, Reid Whitaker, Gretchen Hofmeister, Dani Kohen*; Journal of Organic Chemistry, 2016
- The Combined Fragmentation and Systematic Molecular Fragmentation Methods; *Michael A. Collins, Milan Cvitkovic, Ryan P. A. Bettens*; Accounts of Chemical Research, 2014
- Trouble with the Many-Body Expansion; *John F. Ouyang, Milan Cvitkovic, Ryan P. A. Bettens*; Journal of Chemical Theory and Computation, 2014
- Organocatalysts for biorenewable desymmetrization; *Milan Cvitkovic, David Alberg, Gretchen Hofmeister, Dani Kohen*; 245th National Meeting of the American Chemical Society, 2013
- Computational investigations of organocatalysts for asymmetric additions; *Milan Cvitkovic*; 19th MU3C Conference, 2012
- Organocatalytic Desymmetrization of a Citric Acid Derived Anhydride; *Sean Roberts, Kaz Skubi, Alex Lai, Milan Cvitkovic, Anna Brezny, Kenneth Lum, David Alberg, Gretchen Hofmeister*; P243rd National Meeting of the American Chemical Society, 2012