Scott Hayashi

Contact Information
Email: on request
Telephone: on request

EDUCATION

Technische Universität München Graduated: Sept, 2021
M.Sc. Applied and Engineering Physics
Thesis Topic: Using a graph neural network to predict charge transfer integrals

University of Washington Graduated: June, 2017
B.S. Physics
B.A. International Studies

EXPERIENCE

Feb. 2022 – Current **MediaMarktSaturn** – Associate *Data Engineer* Munich, Germany

Cloud infrastructure, CI/CD, DevOps, and cloud engineering (GCP)
ETL/ELT pipelines to provide an internal single source of truth
Database normalization: 1-4 NF, star and snowflake schema, etc.
Python, Bash CLI tools (sed, grep, etc.), Airflow, Terraform, BigQuery, Cloud Run, etc.

Dec 19 – Sept 21 **Max Planck Institute for Physics** – *Student Researcher* Munich, Germany

Developed and fixed code using CI/CD in Bayesian Analysis Toolkit package (BAT.jl)
Tested code to bring up modules to 99% coverage
Validated Monte-Carlo methods using e.g. hypothesis testing, likelihood CI of 95%, etc.
Implemented samplers of custom distributions from literature

Oct 17 – Oct 18 **Molecular Epidemiology Inc.** – *Machine Learning Engineer* Seattle, Washington

Automated database updates and maintenance
Web scraping, data aggregation, Python, MongoDB, bash, regular expressions
Data munging and cleaning
Built and deployed product which automated analysis of lateral flow results (99%+ accuracy using Tensorflow + OpenCV)
Generated, annotated, and augmented dataset for convolutional neural network.
Coordinated between multiple departments to facilitate development of product
Front-end development (HTML/CSS)

Dec 14 – Sept 18 **University of Washington (Dept. of Physics)** – *Research Associate* Seattle, Washington

Researched and calculated electronic and bulk properties structure of solids using various analysis methods
Investigated unknown composition using a combination of theoretical knowledge in X-Ray spectroscopy and data science / machine learning methods
Contributed to software development of Python package Corvus; a workflow tool for various spectroscopic libraries
Scripted in multiple languages for exploration and analysis of big data with varying formats
High performance and cluster computing

Jan 13 – Dec 14 **University of Washington (Dept. of Physics)** – *Research Associate* Seattle, Washington

Contributed in developing theory and code to be used in molecular dynamics Fortran code.
Scripting in Python, Octave, Bash (grep, awk, etc.), for data analysis, hyperparameter optimization, statistical moments, etc.
Analyzed and calculated properties of solids such as the Debeye-Waller factors, mean square displacements, and radial distribution functions

SKILLS

Programming Languages, Frameworks, and Data
SQL, MongoDB
Julia, Fortran, Matlab / Octave
Python: PyTorch, PyTorch Geometric, Tensorflow, Scikit-learn, Pandas, NumPy
CI/CD
Data ingestion: reliability, efficiency, lakes and warehouses

PUBLICATIONS

Efficient Calculation of the Negative Thermal Expansion in ZrW_2O_8
Vila Fernando D., Hayashi Scott T., Rehr John J.
Frontiers in Chemistry 2018 **6** 296
DOI: 10.3389/fchem.2018.00296

Characterization of Coke on a Pt-Re/γ-Al_2O_3 Re-Forming Catalyst: Experimental and Theoretical Study
Simon R. Bare, F. D. Vila, Meghan E. Charochak, Sesh Prabhakar, William J. Bradley, Cherno Jaye, Daniel A. Fischer, S. T. Hayashi, Steven A. Bradley, and J. J. Rehr
ACS Catalysis 2017 7
DOI: 10.1021/acscatal.6b02785

Molecular Dynamics Simulations of Supported Pt Nanoparticles with a Hybrid Sutton–Chen Potential
Fernando D. Vila, Scott T. Hayashi, Jeffrey M. Moore, and John J. Rehr
The Journal of Physical Chemistry C 2016 *120* (27), 14883-14891
DOI: 10.1021/acs.jpcc.6b03074

Languages

English: Native
German: B2

Links

https://github.com/sthayashi
https://www.linkedin.com/in/scotthayashi/