Julia Putko
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Versatile software engineer with experience building reusable, maintainable systems for scientific computing, HPC workflows, and AI integration. Passionate about interdisciplinary work and developing efficient, user-focused tools for complex systems

EXPERIENCE

AI/ML Software Engineer January 2022 - November 2024
Hewlett Packard Enterprise - Seattle, WA

- Led a large-scale refactor enabling users to configure and launch multiple Redis databases for their HPC and AI applications. Introduced a name-based approach for identifying and connecting to multiple databases
- Designed and implemented a framework within the open-source HPC/AI SmartSim library that enables users to inspect the properties of hybrid HPC/AI workflow components (e.g. workload manager settings, large ensemble configuration, compute resource). This feature significantly reduced user development time and allowed for more efficient use of HPC resources. Used Jinja templates and ensured compatibility on a variety of HPC systems and workload managers (Slurm, PBS, LSF) to ensure reusability, maintainability, and consistency of style
- As an intern, derived technical requirements from data format standards to understand engineering restrictions for the conversion of HPE SmartRedis proprietary datasets to common data formats: VTK, netCDF, HDF5, Xarray. Implemented prescriptive methods in C, C++, FORTRAN, and Python to ensure that users added the necessary metadata to convert datasets streamed from C, C++, and FORTRAN numerical simulations into a broadly-used community format (i.e. Xarray), enabling online analysis and visualization of data

Marine Science Programmer January 2022 - April 2022
Fisheries and Oceans Canada - Victoria, BC

- Processed real-time and delayed mode glider data for Canadian-Pacific Robotic Ocean Observing Facility (CPROOF), improved and created visualizations of data collected by ocean gliders, and distributed quality controlled data via the CPROOF website (NetCDF file format, Yaml, Python, Node.js, Jinja)
- Determined accuracy of metadata conventions, naming conventions, and file types of data files
- Established and validated metadata and naming conventions along with file types for data files, enhancing data quality for end-users
- Wrote Python and bash tools to archive subsets of data in secondary repositories, and performed QA/QC for published data

Computer Model Support Engineer May 2021 - December 2021
Fisheries and Oceans Canada Victoria, BC

- Ported a sea ice and biogeochemistry model used in Canada's climate model into the open-source 1-D General Ocean Turbulence Model (GOTM) in FORTRAN to model climate change impacts in Arctic and marine systems
- Validated functionality and scientific validity within test cases that required HPC-scale resources. Wrote the user guides for this integration covering the installation, usability, troubleshooting guide, known bugs, and recipes for data processing and visualization
- Presented the scientific validation and overall functionality at the BEPSII conference 2021

TECHNICAL SKILLS

Languages: Python, C, C++, C#, Java, Javascript, FORTRAN, Bash, HTML/CSS, MIPS Assembly, R, Matlab
Tools & Frameworks: PyTorch, TensorFlow, Pandas, NumPy, Matplotlib, Xarray
Systems & Technologies: HPC (Slurm, PBS, LSF), Git, Jinja, NetCDF, HDF5, YAML, Node.js

EDUCATION

Bachelor of Science in Computer Science and Psychology September 2017 - May 2023
University of Victoria